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An Ophthalmic Survey of Sample Populations in Mississippi and Louisiana

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This project to determine the prevalence of eye defects and to prevent cases of future blindness is believed to be the most extensive ever conducted.*

THE ophthalmic survey completed in 1956 in two counties of Mississippi and a parish in Louisiana had a number of sponsoring agencies. It was financed by a grant from the Kellogg Foundation. It was participated in by the National Society for the Prevention of Blindness and the Mississippi and Louisiana State Boards of Health. It was conducted by the Department of Ophthalmology of the Tulane University of Louisiana School of Medicine. Finally, the screening instruments were generously lent by the Visual Research Division of the American Optical Company, which also furnished the records used with the Sight Screeners.

As far as we are able to determine, this is the first survey of the kind ever to be conducted. That, in itself, is the explanation for some of the mistakes we made, as well as for our disappointingly slow start and some of our other difficulties.

The original idea for the survey arose from the rather frequent comments in the press, on the radio, and from certain governmental sources concerning the deficiencies in medical care throughout rural America and particularly in the Southern states. Specifically, while there is not much information anywhere concerning the ophthalmic phases of medical care, there is, unfortunately, only too much evidence of the need for ophthalmic care. When the idea of the survey was first conceived, data indicated that there were then, in Mississippi and Louisiana, about 14,000 completely blind persons. Even in the absence of more definite information, it seemed reasonable to assume that with proper diagnostic and therapeutic management, half or more of this blindness could probably have been prevented.

The obvious way to learn the real facts of the situation was to conduct sample screening surveys of mass populations in the South. The plan for such a survey in Louisiana was broached to Dr. Franklin M. Foote, executive director of the National Society for the Prevention of Blindness, and was referred by him to Dr. Matthew R. Kinde, Director of the Division of Medicine and Public Health of the Kellogg Foundation. By a curious coincidence, Dr. Kinde had just received a proposal for precisely the

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, Chicago, Illinois, March 26, 1956.

same kind of survey in Mississippi from Dr. Felix J. Underwood, Director of the Mississippi State Board of Health. At Dr. Kinde's suggestion the plan was discussed with Dr. Underwood, and later with Dr. S. J. Phillips, Director of the Louisiana State Board of Health, and it thus came into existence as a truly cooperative endeavor.

Purpose of the Survey

The purpose of the survey, as it was outlined in the request for funds from the Kellogg Foundation, was essentially six-fold:

1. To prevent cases of future blindness through their recognition when they were still incipient and through the reference of the affected person to proper diagnostic and therapeutic facilities.
2. To determine the prevalence of eye defects in the sample area.
3. To permit an estimate of the type and amount of eye care needed for the general population of this and similar areas of the country.
4. To disseminate the information thus secured to training centers.
5. To secure criteria for an evaluation of present educational programs for the training of specialists in the care of eye defects and diseases.
6. To permit the formulation of an intensive visual conservation program which, though designed specifically for these areas, might be extended to the country at large.

It was thought also that our findings would indicate whether it would be valuable to make similar surveys elsewhere in the country. I believe that they do.

It was not the function of the survey to recommend specific treatment, but merely to refer persons who needed ophthalmic care to sources at which this care could be secured. In other words, the primary objective was to identify defects which were still reversible but which, if permitted to remain unrecognized and untreated, would probably go on to blindness.

Selection of Sample Populations

The survey was conducted in Marion County and Holmes County, Mississippi, and in Iberia Parish, in Louisiana, during the two-year period ending in February 1954.

Marion County, Mississippi, was selected for the pilot survey for a variety of reasons. The most recent information indicated that the population was 23,957 and the ratio of physicians to population 1:1,597. Negroes made up 37 per cent of the population. The people were chiefly engaged in agricultural pursuits, and a large proportion were in the marginal and submarginal financial groups. The median cash income in 1950 was $1,141, and almost three-quarters of the population had incomes of less than $2,000 per year.

Holmes County in Mississippi had a population of 33,301 and a ratio of physicians to population of 1:2,220. More than 75 per cent of the population were Negroes and 90 per cent lived in rural areas, almost two-thirds on farms. As in Marion County, the population was chiefly in the marginal and submarginal financial groups. The median cash income in 1950 was $488, and almost 85 per cent of the population had incomes of less than $2,000 per year.

In Iberia Parish, Louisiana, the population was 40,059, of whom a little over 32 per cent were non-white.

The physician-population ratio was 1:1,541. Forty-seven per cent of the population lived in rural areas, 17 per cent on farms. Economically, this was the richest of the areas studied. The median cash income was $1,835 in 1950, and over half of the families had incomes of more than $2,000 per year.

In all of the areas surveyed the ratio of physicians to population may well be considerably less favorable than the figures suggest. The listing of physicians was secured from the 1952 American Medical Association Directory, and it may be that all of those listed were not practicing, or were not practicing full-time. There was no doubt, however, of the almost complete lack of specialized ophthalmologic care. There were no ophthalmologists certified by the American Board of Ophthalmology in any of the areas surveyed, but there were two physicians in Iberia Parish and one in Marion County who confined their work to ophthalmology and otolaryngology. On the basis of these data it was reasonable to suppose that most persons with visual defects who were living in these areas had no access to specialized ophthalmic care. It further followed that if they did not realize their defects and seek proper attention, which, by inference, usually had to be away from their immediate places of residence, their visual defects would go unrecognized and untreated.

We had thus selected for the survey two counties in Mississippi, plus a parish in Louisiana in which the population was ancestrally different from that of the Mississippi counties. Two of the three areas had a predominantly rural population. All had a large or relatively large non-white population. All, including the richest, were in economically low brackets. The physician-population ratio in all was well below the optimum, and there were scant opportunities for specialized ophthalmic examination and treatment in any of the areas surveyed.

Planning the Equipment

For practical reasons many details of equipment differed in the final set-up from plans made in the original proposal. We originally intended to use an automobile trailer as an office. Later, it seemed wiser to purchase a large truck and have a body built on it according to our specifications. In this we followed the plan used in the highly efficient tuberculosis case-finding program in Mississippi, which proved equally satisfactory in the visual survey.

The truck was equipped with the most modern ophthalmic instruments including slit-lamp, corneal microscope, perimeter, tonometer, and ophthalmoscope, in addition to visual testing apparatus. Since the floor of the truck was of steel covered with linoleum, the equipment could be bolted down and stability during movement thus assured.

The original proposal called for a standard 110-volt gasoline-driven electric generator, to supply current for the operation of the ophthalmic instruments in remote areas where electric current would not be available. When the idea of the large trailer was discarded, this unit was housed in a small two-wheel trailer attached to the truck. Since the generator had to be used almost continuously, the noise proved too trying to endure, and within a short time a 50-foot extension cord was secured to separate it from the truck.

Personnel Problems

Problems of personnel were much more difficult to solve than problems of equipment. It took hard work to secure a technician qualified to operate the screening equipment. It proved impossible to secure a public health nurse, as had been planned, but a young man trained in social work proved a capable substitute. The truck driver assisted the full-time secretary in the large amount of clerical work necessary.

Difficulties encountered in securing these personnel were as nothing compared to the major difficulty of securing a full-time ophthalmologist, adequately trained, who would be interested in both the work and the salary. The first selection was unfortunate. This ophthalmologist was one who had had his medical training in Europe and his ophthalmic training in Philadelphia. His medical and specialty background were beyond reproach, and so was his English, but it was not the kind spoken in rural Mississippi and Louisiana. It was soon evident that, regardless of his intentions, he was antagonizing the people coming to be surveyed, and there seemed little doubt that this accounted for the disappointingly small number screened during the first weeks the project was in operation. That sort of news travels fast.

The second incumbent was a young Chinese, trained at Northwestern University. He proved to be extremely satisfactory.

Training and Preparation

After all preliminary arrangements had been concluded the truck, with its personnel, was brought to New Orleans for two weeks' training in the free clinics of the Eye, Ear, Nose and Throat Hospital. During this period all new patients admitted to the clinics underwent screening according to the routine planned for the survey. At the end of this time the staff was able to carry out the screening procedure expeditiously and proficiently and could recognize the existence of abnormalities. The cooperation of the team members with each other was excellent.

To accomplish our objectives obviously required the cooperation of the population as well as of the agencies engaged in the survey and the local medical profession.

Particular pains were taken before the survey to explain the program carefully to the profession in the areas to be surveyed. Local ophthalmologists and others in adjacent localities served as consultants in problem cases, and their cooperation is deserving of the highest praise. Several who were originally skeptical before the first survey in Mississippi completely reversed themselves when three cases of unrecognized simple glaucoma and two possible brain tumors were identified in the first few weeks of the survey.

Conferences were held before the survey began and at intervals thereafter with local public-health personnel, personnel engaged in public-health education, and interested lay persons. This effort also paid dividends. The number of persons surveyed, and the proportion of the population surveyed in each area indicate that the cooperation of the public was secured.

Procedures Followed

Our first procedure, when the grant had been approved in November 1951, was to send a public-health coordinator

into Marion County, Mississippi, in order to determine whether sufficient interest could be aroused in the population to justify the selection of this area for the first screening study. Her report was favorable. She thereafter went ahead of the truck into the special locality to be surveyed, with posters and handbills which described the purpose of the survey and gave the time and place at which the truck would be stationed. She made talks before civic and religious groups and in schools, as well as over local radio stations, and as a rule was received cordially and heard with interest. Churches and schools cooperated in advertising the endeavor and in lending space for examinations and clerical work.

The special groups approached included 4-H clubs; farm, school, church, civic and industrial groups; preschool conferences and school children. The examinations in the schools were so conducted that the total sample was representative of the total school population in many areas of Mississippi and Louisiana.

During the week the truck moved from one locality to another, with particular attention to consolidated schools. A great many persons were always examined on Saturdays, when it was particularly desirable to have the truck in the courthouse square or in some other community square which was then crowded with rural residents who had come into town for the day.

When the survey was begun in Marion County, Mississippi, in February 1952, the chief attention was concentrated on school children, because vacations in this part of Mississippi begin early in May. Beginning in the schools proved an excellent way of interesting the general public in the survey. Parents of the children came to be examined, and word-of-mouth advertising soon became very productive.

As soon as the mobile unit arrived in an area to be surveyed, the technician began to test the persons waiting to be examined for near and far vision and for muscle balance, while the clerks recorded the necessary data. Any person whose test was not completely normal was referred to the ophthalmologist, who carried out the necessary diagnostic studies, made the diagnosis, and recorded his recommendations. When the examination was completed each person's card was returned to the area health department for follow-up. A public health nurse visited each person who had shown any abnormality. Some were referred to private ophthalmologists. Welfare agencies were notified when the families could not afford treatment.

General Observations

In Marion County a total of 10,934 persons were examined, one out of every two of the population. In Holmes County 11,538 were examined, slightly more than one out of every three. In Iberia Parish 8,150 persons were examined, less than one out of every four.

The samples examined did not differ materially from the population from which they were selected as far as race and sex are concerned. In all three areas, however, there was a marked excess in the proportion of persons in the age group 10–19 as compared with the general population. The explanation is probably the inclusion of a large number of children in the school age. It is unnecessary to go into these

details except to say that a discrepancy such as this, which requires statistical evaluation, indicates the necessity, in a study of this kind, of having the assistance of an experienced biostatistician. In this phase of the work we were fortunate in having the services of Dr. Huldah Bancroft, professor of biostatistics in the Tulane University School of Medicine, and her associates.

There was a total of 8,416 defects in the 5,497 persons whose examinations were not normal, several abnormalities frequently being present in the same person. Since presbyopia is an almost uniform finding in persons 40 years of age and over, those who presented no other abnormality were considered to have normal vision.

The rate of defects was lowest in Marion County, 11.2 per cent; next highest in Holmes County, 18.1 per cent; and highest in Iberia Parish, 26.5 per cent. There is no entirely satisfactory explanation for these differences. Generally speaking, the defect rate in whites was definitely higher than in non-whites in all three areas, and was higher for females than for males in two of the three. Rates for errors of refraction were higher in whites than in non-whites, and in females than in males. In more serious defects, rates were higher in males in both white and non-white groups.

The most frequent of all abnormalities, even after presbyopia was omitted, were errors of refraction, which ranged from 47.3 per cent of the total number of defects in Holmes County to 69.6 per cent in Iberia Parish. Motor abnormalities came next, ranging from 12.0 per cent in Iberia Parish to 14.9 per cent in Holmes County. Diseases of the lens were least frequent in Iberia Parish, probably because in this area the population over 40 years of age was smaller than in the other areas.

Rates for errors of refraction and for diseases of the lens and of the conjunctiva, choroid and retina all increased with advancing age in each area. Motor abnormalities increased to a maximum rate in the age group 20 to 39 in all areas, then decreased in the older age groups. Congenital anomalies showed less variation from area to area and age group to age group.

It is not clear how many of the 80 cases of glaucoma detected in this survey had not previously been recognized.

Conclusions

We are not as yet prepared to say what has come of these endeavors. From the experience of other surveys, including tuberculosis and industrial surveys and similar investigations, we cannot be over-optimistic. Even, however, if the results are small, we are sure that the number of persons who heed the warning given them will be sufficiently large to justify the expense and effort which went into this project, and we would heartily encourage any who are considering similar surveys elsewhere to proceed with them.

EYES IN MIDDLE AGE

"Your Eyes After Forty" is the title of a new six page leaflet available from NSPB. It stresses the close relationship of eye health to general health; the importance of periodic physical check-ups and regular, thorough professional eye examinations in the years after 40. Single copy free on request.

Emphasis is placed on the fact that health hazards increase with age and that we are apt to be menaced by certain diseases that can actually rob us of vision unless we act wisely. Among these are glaucoma, cataract, and general conditions such as diabetes and diseases of the arteries.

PRESENT STATUS OF OPTIC ATROPHY

JOHN W. HENDERSON, M.D.

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The author emphasizes the need for research into those cases of the disease that are related to genetic factors, maternal health and the processes of aging.*

IN considering the causes of optic atrophy which are usually listed —infection, tumors, toxic agents, trauma, congenital and hereditary defects, vascular disease—it is well to remember that the most obvious pathologic change of glaucoma is also a form of optic atrophy. Aside from noting the increasing incidence of this latter disease in relation to our aging population, and the current intense activity in research on this problem, this discussion will be confined to the more classic causes.

As recently as 1947 optic atrophy was reported as the primary cause of blindness in 14.8 per cent of recipients of aid to the blind in 20 states.[1] At least 30 per cent of these cases, and probably more, were due to central nervous system syphilis. During the past decade, however, the advent of penicillin therapy has materially altered the picture. In addition, the more general requirement for blood serological tests of expectant mothers, premarital blood testing, and the acceptance of the Kahn or other tests as a requisite for complete physical evaluation has disclosed many cases in which treatment has prevented future blindness.

Progress has also been made in the treatment of those patients in whom syphilitic optic atrophy has begun. Tryparsamide, a frequent cause of further optic nerve damage, has fallen from favor, and recent reports indicate that penicillin alone is as effective as penicillin combined with therapeutic malaria.[2] Kenney and Curtis recognize a critical stage of visual loss in giving a prognosis with such treatment. The vision must be better than 6/20, and the visual field area on the standard recording chart, where the normal area by planimeter measure is 8.82 square inches, should be at least one square inch if treatment is to be of value in arresting the condition.

Regardless of the diminishing number of cases there will still be occasional individuals with silent neurosyphilis in whom impaired vision will be the first and only symptom. Every

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, Chicago, Illinois, March 28, 1956.

patient with optic nerve involvement, and especially those with pupillary abnormalities, should have a thorough search for neurosyphilis, including tests of the visual fields. Every patient with known neurosyphilis should have perimetric study in order that intensive therapy can be instituted before the onset of optic atrophy.

Danger of Complacency

Despite the fact that new cases of syphilitic optic atrophy are now a rarity in our clinic, cases of tertiary syphilis are still being picked up in the dermatology division, and we must not allow ourselves to be lulled into complacency. A growing tendency to overlook the disease or to omit blood serological tests must be halted. A further disturbing fact is the rapidly increasing number of our population who have developed sensitivity to penicillin—the one best agent for syphilis—by its indiscriminate use in minor conditions where other drugs or time-honored remedies would be just as effective.

In contrast to acquired syphilis, the congenital form of the disease is a less frequent cause of optic atrophy. Of 377 luetics with optic nerve involvement, Klauder and Meyer[3] found only 20 to have congenital syphilis. The trend has been steadily downward. Cordes[4] reported that in the California State School for the Blind 7.4 per cent of the pupils in 1930 were blind from congenital syphilis, while in 1950 only 1.1 per cent were so classified. In his series of 81 optic atrophy cases in infants, children, and adolescents reported in 1952 only one new case of optic atrophy due to congenital syphilis had occurred since 1945. The most recent figures given by Kerby[5] show syphilis as a cause of optic atrophy in blind children in only 0.7 per cent.

Along with improving control of syphilis the response of other infectious diseases to modern drug therapy has further reduced the incidence of optic atrophy. The more effective control of smallpox, typhoid, meningitis, measles and scarlet fever has decreased the number of new cases to a minimum. As a striking example Kerby[6] reported only 9 per cent of new admissions to blind classes as due to infectious diseases in 1949 as compared to a base line of 29 per cent in 1933–34.

One interesting exception to this group is becoming evident. Prior to the advent of modern drug therapy for tuberculous meningitis, the disease was almost uniformly fatal. With streptomycin, PAS, and isoniazid many of these cases now survive to demonstrate optic atrophy. In a series of 108 proven cases of tuberculous meningitis in a recent survey in Baltimore, six cases of bilateral optic atrophy were reported.[7]

Tumors in Younger Blind

The role of tumors in the production of optic atrophy is statistically a small one—0.6 per cent in the overall group.[1] However, a greater number is found in the younger blind. Kerby, for example, reported 6.3 per cent of new pupils blind from tumors in 1949–50 as compared with the 1933–34 base line of 2.2 per cent.[6] It is likely that more favorable survival rates for children as a result of advances in neurosurgical treatment have contributed to this apparent increased frequency. A majority of the brain tumors of childhood produce papilledema early, with resulting secondary optic atrophy. With

greater awareness of neurosurgical possibilities, the physician is often able to guide his patient into proper hands without delay.

Trauma may affect the optic nerve either by direct injury or by indirectly transmitted force. Although the figures for injury as a cause of blindness are decreasing, the alarming rise in automobile accident injuries gives cause for reflection. All ophthalmologists are seeing an increasing number of patients with serious head injuries in whom skull fracture, intracranial bleeding, or direct optic nerve damage have resulted. Many of these show permanent visual loss in one or both eyes. Often the victim is a small child who has catapulted forward at the instant of collision while his adult companions have been able to avoid more serious damage. The increasing use of safety devices, better driver education, more strict licensure regulations, and a more adequate highway program are our only hope since the "horsepower race" continues unabated.

Toxic Agents

Although poisoning by various toxic agents is a cause of few cases of optic atrophy in overall statistics, certain trends are interesting. Several newer drugs—chloromycetin, streptomycin, hexamethonium—have been reported as causing optic nerve damage in isolated cases. Considerable insight into the treatment of acute methyl alcohol poisoning was gained in the bootleg whiskey catastrophe which affected 320 persons in Atlanta in 1951.[8] It was found that absence of the pupillary light reflex was a sign of poor prognosis for life or eventual return of visual acuity. The degree of acidosis paralleled the severity of general and ocular symptoms. It was noted that the most effective treatment of acute methyl alcohol poisoning was intensive and prolonged alkalinization using sodium bicarbonate intravenously and by mouth. The need for treatment was gauged by the carbon dioxide combining power of the blood, and all patients with a level of 10 m.e.q. or less per liter died. Thirty-seven patients died, but of the 283 survivors visual acuity was 20/200 or less in one or both eyes of only 9 patients.

Industrial exposure to various toxic agents is still a danger as new products are developed, despite safeguards. Carroll,[9] in discussing 50 etiologic agents which produce toxic amblyopia, stated recently "as new drugs are used in medicine and new industrial processes are developed we must constantly be on the watch for new causes of toxic amblyopia."

Hereditary Factors

With elimination of the major effects of infectious diseases on the production of blindness, the emphasis has gradually been shifting to the congenital and hereditary anomalies. In Sorsby's words: "No drastic decline in the incidence of blindness in childhood is to be expected, for we have now reached the hard core of congenital and hereditary affections for which present-day methods of treatment are largely ineffective."[10] Certain of the sometimes hereditary constitutional affections of the skeletal system may affect the optic nerve, often by direct involvement at the optic canal. Among these are osteopetrosis (Alber's-Schönberg disease), osteitis deformans (Paget's disease) and the related conditions of leontiasis ossea and hyperostosis frontalis interna. Oxycephaly

and cranio-facial dysostosis (Crouzon's disease) may lead to optic atrophy secondary to the papilledema of increased intracranial pressure. Optic nerve involvement has recently been reported in Albright's disease (osteitis fibrosa disseminata) and in cranial metaphyseal dysplasia or Pyle's disease.

Congenital defects of the ocular system may be proved to be of genetic origin in certain cases. Here, thorough pedigree study and genetic counselling are of definite value to the involved family. This is especially true in the case of Leber's disease, where well-established modes of inheritance are known. But there is a growing body of evidence which shows that a certain number of congenital malformations may be environmental in terms of the pregnant mother's health.[10] Rubella was the first disease to show such an effect upon the developing fetus, but other virus diseases may occasionally act in the same way, and the late stages of pregnancy may also be susceptible. In a recent report another virus disease, poliomyelitis, has been demonstrated by virus and serological studies to have been transmitted from an affected mother to her baby.[11] Such evidence of intrauterine infection, although not productive of abnormalities in the specific case reported, adds another possibility to the list.

Optic atrophy as well as other ocular abnormalities have been reported in infants with erythroblastosis, in which Rh factor incompatibility between the fetus and the mother occurs.[12] In addition there is evidence that blood group incompatibility as well may produce defects.

Certainly, in view of the possibilities just discussed, the physician who encounters a child with congenital defects must obtain a painstaking genetic and maternal health history in evaluating his patient.

Vascular Aging

One further cause of optic atrophy should be mentioned, especially in view of our aging population. This is a disease of the nutrient arteries of the optic nerve. Because of atherosclerosis obstructing certain of the small arteries of the optic nerve in the region of the lamina cribrosa, degeneration of the nerve fibers leads to a backward displacement of the lamina with cupping and pallor of the nerve head. The disk cannot be differentiated from that of chronic glaucoma—hence the name pseudoglaucoma. Each case should be studied carefully by provocative tests for glaucoma, tonography, and thorough follow-up examinations. The possibility of brain tumor should be ruled out. The visual field defects of this vascular disease may be either arcuate or altitudinal in type, but tend to involve central vision earlier than in true glaucoma. There is no effective treatment at the present time, and we must await more fundamental research into the causes of vascular aging for our answer.

One hopeful note in the circulatory diseases of the older patient has been sounded in the condition of temporal arteritis. As Rucker has described the disease[13] there is inflammation in the walls of arteries of various parts of the body, especially of those about the head. It occurs usually after the age of 60, and if arteries are involved in the anterior part of the optic nerve permanent loss of vision follows. About half the cases show such visual loss, and there is a good chance that the

second eye will be involved. Associated symptoms of pain, swelling and tenderness in the temporal arteries, anorexia, leucocytosis, severe headache and fever are present. Cortisone has been found to be an effective drug for control of the local and systemic symptoms, and further loss of vision can usually be prevented.

Hormone Treatment

Considerable literature has accumulated with regard to the use of the steroid hormones—ACTH, cortisone, hydrocortisone, meticorten and others—in the treatment of various ocular inflammatory diseases. As is the case with many new therapeutic agents, the test of time has allowed us to reach a proper perspective in evaluating their action. In the case of optic neuritis Rucker,[13] in the symposium on diseases of the optic nerve presented at last fall's meeting of the American Academy of Ophthalmology and Otolaryngology, reported a surprisingly similar recovery rate in patients treated with ACTH versus those treated with various other means, and stated that the final visual acuity of the two groups showed only a negligible difference. He concluded that ACTH and cortisone are of no greater value than other agents in the treatment of optic neuritis, and that because of the dangers inherent in their use, they are not recommended as a routine treatment.

Regardless of the statement just reported, it has been the custom at our clinic to employ the steroid hormones for at least a short course in the acute optic neuritis case where no etiology can be determined by careful study. It is likely that the block of conduction in the optic nerve which leads to loss of central vision and typical scotoma is at least in part due to inflammatory edema in the nerve out of proportion to the causative lesion. Since the blood supply to the papillomacular bundle is limited and probably terminal, it follows that reduction of the inflammatory reaction as soon as possible may limit the amount of resulting atrophy and visual loss. That this appears to be the case has been shown by several of our patients in whom definite visual improvement and reduction of scotoma size has followed within 24 hours after instituting treatment. It may be that our selection of cases for use of these agents will improve with further experience. We have certainly no reason to believe that the steroids are doing more than reducing the extent of the inflammatory reaction.

The current status of optic atrophy is far from being fixed in nature. We must continue to use those means at our disposal for adequate early diagnosis and treatment, and should actively encourage research into those cases due to genetic factors, maternal health, and the processes of aging.

REFERENCES

1. Hurlin, R. G., Saffian, S., and Rice, C. E. Causes of Blindness among Recipients of Aid to the Blind. Federal Security Agency, Washington, 1947.
2. Kenney, J. A., Jr., and Curtis, A. C. Treatment of syphilitic optic atrophy by penicillin, with and without therapeutic malaria. *Am. J. Syph., Gonorrh., and Vener. Dis.* 37:449–457 (Sept.) 1953.
3. Klauder, J. B., and Meyer, G. P. Syphilis and blindness. *Sight-Saving Rev.* 20:99–105, No. 2, 1950.
4. Cordes, F. C. Optic atrophy in infancy, childhood, and adolescence. *Am. J. Ophth.* 35:1272–1284 (Sept.) 1952.
5. Personal communications.

6. Kerby, C. E. Causes and prevention of blindness in children of school age. *Sight-Saving Rev.* 22:22–31, No. 1, 1952.
7. Henderson, J. W. Symposium on diseases of the optic nerve. *Trans. Am. Acad. Ophth. and Otolaryng.*, 60:36–38 (Jan.–Feb.) 1956.
8. Benton, C. D., Jr., and Calhoun, F. P., Jr. The ocular effects of methyl alcohol poisoning. *Am. J. Ophth.* 36:1677–1685 (Dec.) 1953.
9. Carroll, F. C. Symposium on diseases of the optic nerve. *Trans. Am. Acad. Ophth. and Otolaryng.*, 60:74–82 (Jan.–Feb.) 1956.
10. Sorsby, A. Modern Trends in Ophthalmology, Third Series. Paul B. Hoeber, Inc., New York. 1955.
11. Shelokov, A., and Habel, K. Subclinical poliomyelitis in a newborn infant due to intrauterine infection. *J.A.M.A.* 160:465–466, (Feb. 11) 1956.
12. Walsh, F. B. Clinical Neuro-Ophthalmology. Williams and Wilkins Co., Baltimore. 1947.
13. Rucker, C. W. Symposium on diseases of the optic nerve. *Trans. Am. Acad. Ophth. and Otolaryng.*, 60:93–96 (Jan.–Feb.) 1956.

CALIFORNIA MAPS WAR

The strategy for a statewide campaign against blindness is under study by the State Department of Health, which was granted research funds of $143,000 from the William K. Kellogg Foundation for a three-year study of blindness in the state, and the formulation of a program for community action. This move was sparked by the recent victory over retrolental fibroplasia, which has been blinding about four-fifths of California children under age seven on the records of the sightless.

The dramatic story of RLF—in which research found the cause to be excess oxygen given premature babies, and professional and governmenal forces then worked with great speed to eliminate this needless tragedy—provides the general framework of the future campaign: research, collaboration by medical and state authorities, and then action on the community level. Local medical groups have suggested that glaucoma and amblyopia ex anopsia should be high on the list of conditions to be detected early enough to prevent loss of useful vision.

There are an estimated 24,000 blind persons in California, but the exact number is not known, nor is the incidence of potentially blinding diseases. A precise picture of eye health in the state is the first task of the department's program.

Very nearly complete elimination of ophthalmia neonatorum and congenital syphilis has protected infants, but the sudden inroads caused by RLF stimulated a program for the diagnosis and treatment of eye diseases in minors. During the fiscal year 1953–1954 the State Department of Health helped more than 7,500 children with eye conditions, at a cost of over half a million dollars.

CORRESPONDENCE SOCIETY FORMED

Eye specialists in every corner of the globe can now receive advice and comment from their colleagues through the newly organized International Correspondence Society of Ophthalmologists and Otolaryngologists. Membership is open to physicians practicing one or both specialties. Members submit questions to the editor of correspondence, who then polls specialists likely to be interested in the subject. The original query and the responses it evokes are then published in "Collected Letters" and sent to the membership.

The editorial advisory board for ophthalmology consists of Drs. J. H. Allen, New Orleans; M. J. Hogan, San Francisco; P. R. McDonald, Philadelphia; H. L. Ormsby, Toronto and H. G. Scheie, Philadelphia.

The Army's Occupational Vision Program

CAPTAIN ROBERT W. BAILEY, MSC

Occupational Vision Branch
Army Environmental Health Laboratory
Army Chemical Center, Maryland

Over 70 Army installations with 165,000 civilian employees now have standard programs for maintaining visual efficiency and safety.*

THE personnel within the Department of the Army comprises two basic groups, military and civilian. Although careful attention is given to maintaining the health of both, the scope of the occupational health program for civilian employees, including vision, may be less widely appreciated than the medical service for the military.

During World War II industrial vision surveys were made by the National Society for the Prevention of Blindness in cooperation with the War Production Board, the United States Public Health Service, the United States Department of Labor and the War Manpower Commission. These studies and the subsequent conference on industrial ophthalmology at Columbia University during May 1945 stimulated the development of the Army's occupational vision program. In 1946 personnel of the Army Environmental Health Laboratory initiated small-scale pilot studies using a battery-type vision-testing instrument. Programs in operation at other governmental and civilian industrial installations were carefully evaluated; advice and assistance were sought from representatives of the Joint Committee on Industrial Ophthalmology of the American Medical Association, and from other leaders in this field.

The Laboratory then began to develop and to put into effect occupational vision programs for those plants having Army Federal Civilian Employees Health Service Programs, with the ultimate objective of extending it on an Army-wide basis. Operational techniques were established, stabilized and accepted in the course of the next two years. By 1953, 19 large installations with 90,000 employees were being provided with this additional health service, which has since been expanded to include over 70 installations and 165,000 employees.

Consultant Service

There are no basic differences between the vision programs of many large industrial organizations and those in operation at such Army-owned and operated installations as arsenals and depots. The Army program is unique, however, in that specially trained optometrists visit the installations as consultants. Operating under the specific guidance of occupational medicine specialists and the general guidance of the consultant in

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, Chicago, Illinois, March 26, 1956.

ophthalmology to the Surgeon General, these Medical Service Corps officers show management (command in the Army) medical, safety, and other key personnel how to develop a dynamic vision program. This then comes under direct supervision of the post surgeon, or the industrial physician. The staff of specialists in the Occupational Vision Branch of the Army Environmental Health Laboratory is readily available for consultant service, and makes routine periodic visits.

In the Army a direct order can be given to accomplish an operation; however, the one sure way to generate interest and elicit cooperation is to show each department concerned how it will benefit, either directly or indirectly, by such a project. The commanding officer is interested in how it will improve efficiency, morale, safety, and effect dollar-and-cents savings. The medical service is alert to bettering the quality of its preventive medicine activities and readily appreciates the value of comprehensive visual skills testing. The personnel department is assisted in its employees' utilization program by having readily available additional information concerning the visual skills of the employee and their effect on job training time, job stability and morale.

Effect on Accident Record

The safety director, whose primary concern is the reduction of accidents, is supported when an effective eye-protection program is in operation; or if there is none, he is assisted in getting such an activity under way, and is shown how it can reduce the accident frequency rate. Supervisors learn how their production record can be bettered by improved visual skills. They are also made familiar with the referral procedures and safety eyewear requirements so that they may answer employees' questions and explain the objective—which is to help the employee see more comfortably and safely as he works.

In the Army civil service physical standards for employment take precedence over the standards established for job placement and referral in an occupational vision program. Our vision standards have been developed principally by studying various operations with a view to determining the skills required. Under the Army's employee-utilization program, however, a person may not work on the same job every day of the week. Therefore, a study of a number of operations is often necessary before an individual can be properly classified according to the maximum visual demands of the jobs he may perform. A physical survey of the operations, combined with six broad vision standards developed by the Army Environmental Health Laboratory, under which most of our employees can be classified, insures proper placement.

Vision Testing Procedure

Technicians or nurses are trained to use the vision-testing instruments. All new employees are tested; individuals already employed are checked at least once every two years. At the close of each testing day the technician compares the scores with the job vision standards assigned by the consultant. Notification forms are completed for those employees obviously passing or failing; the borderline or exceptional cases are referred to the chief medical officer or industrial physician for in-

dividual evaluation. An employee who needs corrective safety eyewear is given a prescription blank to take to his eye doctor in order to have the prescription and frame measurements completed. The prescription is returned to the medical department where it is reviewed for completeness, then forwarded to the safety office where the proper type of eye protection is specified and ultimately forwarded to the installation purchasing authority. The refraction is the financial responsibility of the employee. Present laws provide for emergency eye treatment only, except for occupationally incurred disease or injury.

Plano safety glasses are normally provided in lots of assorted sizes and are made available to employees not requiring correction. Those who are not employed on eye-hazardous jobs, and who do not pass the vision test, are referred to their own eye doctors for professional care and then retested with their corrective lenses to see whether they meet the job-vision standard. In the rare cases where an employee again fails the screening test he receives individual attention and counseling by the medical department.

BLINDNESS IN U. S. INCREASES

According to estimates of the National Society there are now 334,000 blind persons in the United States. The probable number who will go blind in 1956 is 27,000.

Prevention efforts are showing heartening results where causes of blindness are known. More intensive research is needed, however, as a guide to reducing eye affections in which blindness rates remain high because the causes have not been determined.

HELEN GIBBONS APPOINTED TO NSPB STAFF

Miss Helen Gibbons of Rockford, Illinois, joined the National Society's staff in July as consultant in education. She is particularly well qualified for this post, having been a teacher of partially seeing children in Rockford since 1935.

Miss Gibbons will be available as a consultant to divisions of special education, to schools which have facilities for partially seeing children, and to administrative personnel who are concerned with setting up such facilities. She will also work with departments of education and teachers' colleges on many problems relating to vision.

Miss Gibbons is a graduate of Rosary College, River Forest, Illinois, and holds a master's degree from Northwestern University. She has had specialized training in the education of the partially seeing at Western Reserve University, Cleveland, and Ohio State University, Columbus. She has been active in a number of organizations in the field of special education and has participated frequently in related conference programs.

NEW JOURNAL

The first number of the *Survey of Ophthalmology*, which appeared in February, defines its function as a journal offering long digests of articles of ophthalmic interest, together with editorial evaluation of the contribution. The editor is Frank W. Newell, M.D., chairman, section of ophthalmology, University of Chicago.

Williams & Wilkins are the publishers of the new journal, whose editorial offices are at 4500 N. Mozart Avenue, Chicago 25. The *Survey* will appear six times a year, and the subscription rate is $9.00, or $2.00 for single copies.

Statement Concerning the Use of Oxygen in the Treatment of Premature Infants

Prepared by the Committee on the Fetus and Newborn Infant of the American Academy of Pediatrics

THE accumulated evidence definitely incriminates the excessive use of oxygen as a major factor in the cause of retrolental fibroplasia in premature infants. "Excessive use" implies concentrations of more than 40% or the prolongation of administration after the indication for its use has passed. It is possible that even short periods of administration of higher concentration may be harmful.

On the other hand, the intelligent use of oxygen can be the means of saving the lives of hypoxic, dyspnic, and cyanotic babies. It would be unwise to arbitrarily deny adequate oxygen (and perhaps life) to those babies because of possible injury to the eyes of some.

Accordingly, the following recommendations are made:

1. Oxygen should be prescribed only on medical order the same as any drug or treatment. (Except in emergency.)
2. Oxygen should not be administered routinely but only upon specific medical indication.
3. Oxygen concentration should be kept at the lowest possible level that will relieve the symptoms for which it is given, if possible not over 40%.
4. Oxygen therapy should be discontinued as soon as the indication for it has passed.
5. Ordinarily, the indications for supplemental oxygen are general cyanosis (not acrocyanosis) and dyspnea. The urgency of treating these symptoms must rest with the clinical judgment of the attending physician.
6. Oxygen concentration must be determined by means of an oxygen analyzer as often as necessary to keep it properly stabilized but at least every four hours.
7. A source which does not contain or deliver more than 40% oxygen will insure against exceeding that concentration but may not be adequate in those occasional instances where higher concentration is desired. If such a restricted source of oxygen is employed, additional oxygen should be available for those special instances where it is indicated.
8. There are no apparent contra-indications to the use of supplemental oxygen in infants weighing more than five pounds.

September, 1955.

QUACKERY GOES ON AND ON

Americans spend millions every year for worthless or sometimes dangerous gadgets for self-treatment of every imaginable sort of ailment. A leaflet issued by the bureau of investigation of the American Medical Society under the title "Mechanical Quackery" exhibits some of the devices which have found a wide market. One of them, the "Electreat Mechanical Heart" has been claimed as valuable in treating weak eyes, lumbago and boils. It consists of a metal shaft with a roller at the end containing ordinary flashlight batteries. A few applicators, including a wire brush to "remove dandruff," are accessories. The promoter of this fraud was prosecuted by the government in 1950 for false and misleading claims, but such devices have a way of reappearing on the market.

MEDICAL SOCIAL WORK WITH EYE PATIENTS

LAURA JANE HENRICH

Medical Casework Supervisor
Buffalo General Hospital
Buffalo, New York

The social worker's focus with the eye patient is on understanding the meaning of visual loss to the individual and on helping him mobilize his personal strengths toward optimum community adjustment.*

SINCE about 85 per cent of our learning is acquired through vision we soon begin to regard sight as the basis of experience and understanding, even of reasoning. In short, vision seems to us fundamental to enjoyment of life; to judging and controlling the environment; to a happy, productive experience. This impression is not entirely true, since our other senses contribute as surely, though less obviously. However, when vision is lost, partially or completely, the individual finds himself more greatly incapacitated than by the loss of one of the other senses, and required to make greater adjustments. Actually, it is the cultural attitude toward its loss that makes the reorganization process so difficult.

The problems of adjustment for those who have partial sight or are gradually losing it may, in a way, be even greater than those of individuals definitely faced by blindness. Theirs is often a life of anxious and hopeful waiting colored by an intense fear. They have not the certainty and irrevocable reality of blindness around which to reorganize their lives. They may suffer from certain eye diseases for a large portion of a lifetime, frequently undergoing hospital treatment and surgery.

These people are not provided for financially as are the legally blind and large hospital bills, together with possible or actual cessation of income, can be overwhelming. None of the special services available to the blind is open to them; there is no provision for them outside of regular public assistance. This means a void as far as recreation is concerned. If the individual cannot read, for example, he is not eligible for a talking book or Braille instruction unless his vision falls below the legal limit. Nor will he be included in the clubs and parties for the blind, even though his vision may preclude other forms of recreation. This leaves the partially seeing person in an undesirable position with no one offering him any particular help.

Facing Fact of Visual Loss

Telling the facts about visual losses can be a most difficult responsibility for an eye physician to face. However, it seems to be of the utmost importance for a patient to know where he stands. He is not likely to make any

* Excerpts from a thesis submitted for the degree of Master of Social Service at the University of Buffalo School of Social Work, June 1951.

attempt to adjust to loss of vision and to learn ways of living with it, if he continues in the hope that his sight will be completely restored. When a patient goes from month to month with no indication of what his condition really is, he begins to doubt his doctor's interest, to feel he is being used as a guinea pig, to wonder what is to become of him and whether anyone really cares.

Otto Fenichel, an outstanding authority on traumatic neuroses, has stated that "traumatic neuroses are more intense when the trauma encounters an ego exhausted by long endured stress (presupposing that the stress was not a kind of 'expectation' of the event, in which case it would be a favorable circumstance)." Fenichel feels very strongly that "proper preparation can avoid or diminish shock." Consequently, if the patient is told in realistic fashion what is happening to his eyes and what he may plan on for the future, he will be much better able to accept blindness or partial sight and to reorganize his life accordingly. It is most interesting to note that patients with eye disease have a more difficult time adjusting to blindness than do those blinded by accident.

Interpretation by Social Worker

Medical interpretation to the patient is an important part of the social worker's function. In the field of ophthalmology this involves an exceptionally large amount of technical information. Eye diseases and anomalies are myriad and the terms used to describe them are complex. The eye worker must develop a reasonable acquaintance with the language of ophthalmology in order to know what is being recommended as treatment and to understand the meaning of diagnosis and prognosis to the patient.

Unlike illnesses in some other parts of the body, eye pathology can frequently be diagnosed with speed and accuracy, sometimes on the first examination. This has much psychological import for the patient who may be precipitated into a state of confusion, shock and anxiety on learning of a serious diagnosis. The physician's report often means the sudden facing of a reality that has been avoided before, or a confirmation of most dreaded fears.

Recommendations follow quickly and, combined with the diagnosis, seem overwhelming in the beginning. The new eye patient is often unable to comprehend their meaning or to respond intelligently to the first treatment steps. This is a frequent reaction to shock, requiring time and the help of the professional team in facing a new and threatening situation.

The medical social worker can offer invaluable service at this point by reviewing with the patient and his relatives the ophthalmologist's findings, the recommendations for care and the next phases of the treatment plan. In these interviews the patient should have an opportunity to voice the various concerns in his mind and to ask questions. Particularly if surgery is necessary, he will need support and guidance in approaching the operation with equanimity.

Anxiety through Misunderstanding

The patient is apt to become confused and frightened if he hears the doctors and medical students in the clinic and on the ward discussing his condition. Perhaps he understands a little of what is being said or nothing

at all, but in any instance he concludes that his condition is serious. This practice is an unfortunate one, the results of which the social worker must sometimes handle. Of course the patient needs to learn from his doctor, insofar as practicable, what diagnosis, treatment plan and prognosis are, but to hear this in an impersonal, dispassionate discussion can be devastating. He may overhear conjectures about his condition which rule out further treatment, to his way of thinking, but which may later be grossly altered, even reversed, by the physician. For example, one patient heard it said that surgery would result in the loss of her eye. When it was subsequently decided that only an operation would save the eye she refused to go along with it on the basis of the previous impression.

After the physician has told the patient as much about the eye condition and treatment as he is ready to disclose it is the medical social worker's job to make sure that the patient understands all the implications, and particularly the importance of following medical instructions.

Preparation for Surgery

In the case of surgery the ophthalmologist's effort to prepare the patient may fail because the very thought of an operation is so threatening that the explanation is not absorbed. Having someone answer questions and clarify procedures can influence considerably the state of mind in which the patient approaches surgery. Good operative results require his cooperation.

It may be necessary to explain medical procedure and the reason for it more than once before the patient can grasp and accept it for himself, particularly since so many eye patients are in the older age group. It is important to interpret the treatment regimen to responsible relatives as well. The cooperation of a close friend or relative in enabling the eye patient to accept treatment is often the difference between success or failure. It is appropriate that a patient should himself decide to accept or reject suggested treatment, but he should do this on the basis of thorough knowledge of what it can offer and what is entailed.

Critical Decisions

If the vision in one eye has already been lost it is indeed a very serious decision as to whether to have an operation on the other eye. Though much eye surgery has a high percentage of success (such as 90 per cent in cataract) it is not possible for the physician to promise the hoped-for result. The enucleation of an eye is one of the most dreaded procedures. Much skill, patience and understanding must be employed by the physician and social worker in helping the patient and his family approach such a crisis. Otherwise when results are unsuccessful the patient can feel with justification that a breach of faith has occurred and this enormously complicates the matter of cooperation in after-care.

The patient facing eye surgery usually has an advantage in that his ophthalmologist is also his surgeon. Thus, there is a closer doctor-patient relationship and continuity can be maintained through surgery and after-care. The patient is spared the anxiety that comes from having to establish relationship with a surgeon following referral from the family physician, and then having to return to the latter from a specialized phase of treatment.

BOSTON UNIVERSITY SCHOOL OF EDUCATION LIBRARY

Clinic Conditions

The volume of patients and the limitations of time in outpatient eye clinics are well recognized. Such factors place a heavy responsibility on the social worker. From her broader knowledge of the patient's total situation she can keep the doctor informed, so that treatment planning will be in accord with actual circumstances. If the eye patient encounters a different ophthalmologist on each visit the social worker becomes the only team member with whom there is a sustained relationship, the one who can interpret his needs to the doctor. She also knows how to put the patient in touch with community agencies when their service is necessary. Her liaison function in this area enhances the physician's knowledge of such services and enables him to be more practical in some of his recommendations—for example, family arrangements, discharge planning, convalescent care.

Psychiatric Consultation

The social worker is in a strategic position to note abnormal personality reactions indicating the need for psychiatric consultation. This can be a matter of real concern since paranoid patients have been known to become self-destructive during eye surgery. The use of psychiatric guidance in ophthalmology is becoming more prevalent and it should be sought increasingly when severe feelings of frustration and depression accompany vision impairment.

Practical Considerations

The medical social worker concerned with eye patients needs to be closely involved with the practical changes which loss of vision, or even temporary eye conditions, bring into everyday life. Generally the first need is some kind of financial assistance in arranging for hospitalization, medication, transportation or maintenance. Hospitalization today is an expensive item which can involve people deeply in debt for a period of years, particularly when there are repeated admissions, as in the case of certain eye diseases. Marginal income families especially need help in such circumstances because of lack of savings.

A patient may be forced to give up his job temporarily, indefinitely or even permanently; to find employment requiring less visual acuity. In the latter case vocational retraining may be necessary. It is the social worker's job to alleviate some of the resulting anxiety of the patient by aiding him in specific ways to find proper resources. It is not unusual for the worker to be asked by the patient with an uncertain eye prognosis if this is the right time to start learning Braille, a request indicative of the latter's effort to take some responsibility for his own future needs.

Eye surgery often is not as incapacitating as other operations but when the patient is frail and elderly several weeks of convalescent care may be necessary. Lessened physical activity for a period following retinal detachment poses practical problems for housewives and people engaged in strenuous occupations.

In working with persons who are ineligible for services to the blind, more ingenuity must be used in locating resources. Financial assistance, medication, appliances, even transportation can be handled more readily than opportunities for leisure time activities. Many of these persons do

not see well enough to enjoy reading, television, movies or other recreation requiring near-normal vision, and there are few suitable substitutes. This is unfortunate since they may have much free time as they wait for results of surgery, or for the disease to become stabilized, or for suitable employment.

In short, there are numerous practical arrangements with which the social worker can and should help her eye patients, but she should not take over the management of activities rightfully belonging to the individual. It is easy to make this error when the patient is feeling helpless and overwhelmed by his condition; but it will only reinforce his impression that a visual handicap means dependence on another person.

Emotional Support

The eye patient may say, "I would rather be dead than go blind." The worker cannot go along with this feeling by saying nothing, nor can she answer with platitudes. With the patient's cooperation she must estimate first what impairment of vision means to him personally. When he has been helped to talk through these feelings, and to look at the factors which are fundamentally disturbing, he will perhaps have begun to understand himself in relation to the handicap. However, self-understanding is not enough; the worker should move on to acquaint him with some of the actual methods by which people with limited vision are enabled to carry on their usual activities. In general, she should help him see the positive factors and strengths which remain to him and the processes through which they can be further developed.

Another area of social work competence relates to medical follow-up. It is essential, for example, that glaucoma patients be reexamined regularly in the clinic in order to keep the disease under control. When months and perhaps years pass with little or no change in the medication or the doctor's comments, patients grow discouraged and discontinue treatment. The medical social worker needs to discuss with this group, as soon after diagnosis as possible, the nature of the disease, the fact that it cannot be cured, why the goal of treatment is successful control, and the need of full cooperation with the ophthalmologist's recommendations. Here too, relatives, when properly informed, can bolster the glaucoma patient's willingness to keep up the medical regimen. When an individual lives alone the social worker often has to assume more responsibility for such encouragement.

Summary

It should be obvious that none of what has been proposed can be accomplished quickly. Actual visual loss is a shock to the individual experiencing it, productive of much fear and depression which are not relieved at once, no matter how adequate the ability to adjust. Therefore the medical social worker must be prepared to give service on a long-time basis. Her role with eye patients is one of multiple functions. It has been shown that medical interpretation and follow-up comprise part of the service to be offered. This is as it should be, since it is the medical condition that has brought the patient to the hospital and is generally his major concern, especially in the beginning.

Explaining the patient's social and emotional needs to the ophthalmolo-

gist is also an important responsibility stemming from the social worker's special area of competence. Practical aspects include referral to other agencies for financial assistance, transportation, appliances, employment or rehabilitation.

These services are performed as casework functions recognizing the individual's unique needs and reactions in relation to the eye problem, his right to make decisions and participate actively in the treatment recommendations. The primary discipline is medical and the social worker in this setting must collaborate with the doctor and other hospital staff members toward the best service to the patient.

Because the majority of eye difficulties are related to degenerative changes, the number of persons with visual problems will increase as the span of life lengthens. New knowledge about the aging processes will enhance the worker's skills in any eye program.

Since half of blindness can now be prevented if full use is made of our current knowledge it is readily apparent that medical and social work efforts in this field must be directed toward early and continuous treatment in order to reduce the appalling amount of unnecessary blindness in this country.

DRIVER EYESIGHT STUDY

The committee on eye care of the Connecticut State Medical Society has offered its services to Governor Abraham A. Ribicoff for the study of vision defects in drivers as related to traffic accidents. The committee was set up to promote improvement in eye care and to cooperate with agencies concerned with problems of vision. Its chairman is Dr. Clement C. Clarke of New Haven.

CASE OF THE BLIND DRIVER

An almost incredible case of a blind Californian who somehow managed to drive a car and was responsible for a woman's death has been verified by the National Society. C. H. Hess, public information officer of the California Highway Patrol, states that the driver, Albert Wallace Wyeth, was 32 at the time of the accident in August 1955, and that since 1949 he had been receiving state aid for the blind. His vision was 2/200, 10/200 when the accident occurred.

"Mr. Wyeth entered a plea of guilty to misdemeanor manslaughter and was sentenced to three years probation," Mr. Hess wrote the Society. "The conditions of the probation were that Mr. Wyeth would not drive a motor vehicle at any time in the future, use no liquor, conduct himself as a good citizen, report to probation officer once a month, pay victim's funeral expense, and must serve 60 days in the county jail."

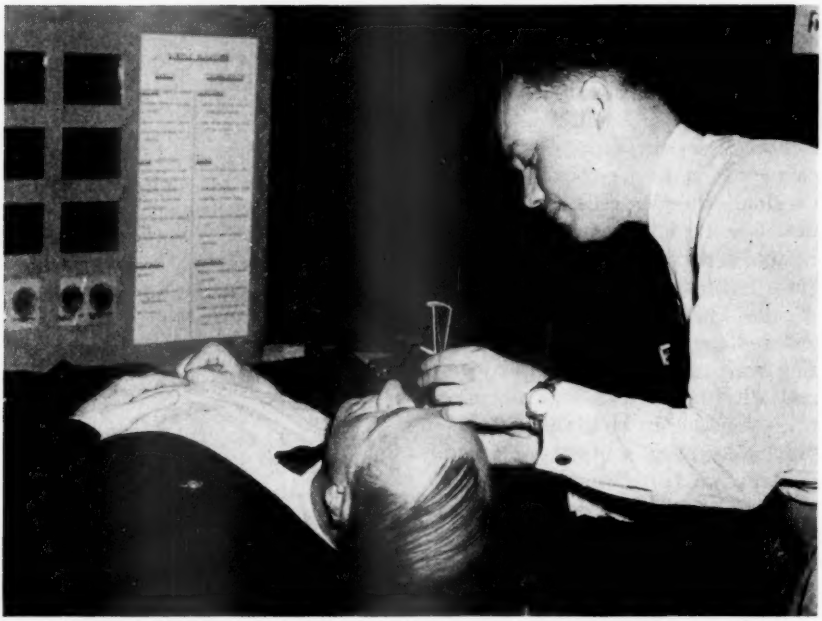
REFLECTIONS ON RESEARCH

". . . In some respects the mass popularity of research is good, for science is profoundly if not decisively influenced by the attitudes of the society in which it is embedded. But in other respects, this popularity is hazardous. It is hazardous to the extent that it is based upon unreasoning fear and unwarranted hopes. It is hazardous to the extent that it views science in isolation, rather than in the context of the total educational system that must produce good citizens and good scientists.

"Such attitudes are an unstable base on which to build. Awe, fear, and visions are poor substitutes for understanding. They are attitudes that can distort research, particularly by leading to undue emphasis upon specific and limited problems relating to diseases at the expense of nonapplied research basic to medicine."

James A. Shannon, M.D.
"Trends in Medical Research."
Journal of the American Medical Association, March 24, 1956.

EXHIBIT FEATURES GLAUCOMA DETECTION

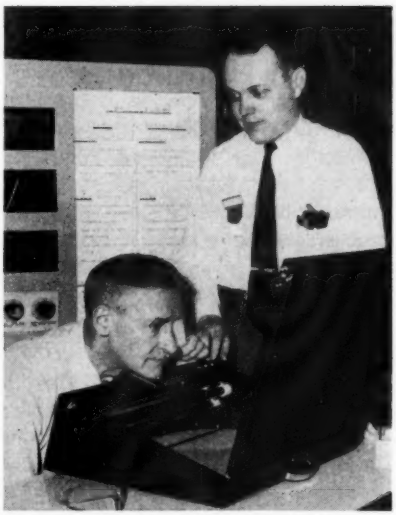


Dr. Sam Jones uses Schiøtz tonometer to take the tension of a physician visiting the exhibit

EARLY detection of glaucoma was the subject of the National Society's exhibit for the American Medical Association meeting held in Chicago, June 11–15. The purpose of the exhibit was to encourage the family doctor to look for signs of glaucoma through use of the ophthalmoscope and tonometer during routine physical examinations of persons 40 years of age and over. The signs and symptoms of early and established glaucoma were listed and some facts about treatment were given. A comparison of the symptoms of the two types of primary glaucoma, closed angle (formerly called acute congestive) and chronic simple was made.

Physicians were invited to have their tensions taken with a Schiøtz tonometer and their fields of vision checked on the Harrington-Flocks Multiple Pattern Field Screener. It was gratifying to have 113 men and women visit the booth for these tests. Tension was elevated in three persons and 28 missed two or more patterns on the Harrington-Flocks screener. For these persons it was suggested that a recheck of the findings be made when the individual returned home. It was interesting to note, although not directly related to the above findings, that 73 of the persons checked wore glasses all of the time.

The exhibit was sponsored by the National Society's Committee on Glaucoma, of which the following ophthal-



Dr. Willis S. Knighton of New York and Dr. Sam Jones of Chicago demonstrate how the Harrington-Flocks screener is used for checking fields of vision

Displaying Honorable Mention certificate awarded National Society's exhibit at 1956 AMA Convention are, left to right: Ethel Hannon, R.N., Illinois Eye and Ear Infirmary; Virginia S. Boyce, NSPB assistant director; and Frank W. Konzelmann, M.D., chairman of the AMA Committee on Exhibits

mologists are members: Willis S. Knighton, *chairman*, New York City; Francis Heed Adler, Philadelphia; Frederick C. Cordes, San Francisco; Arthur Gerard DeVoe, New York City; John H. Dunnington, New York City; Edwin B. Dunphy, Boston; F. Bruce Fralick, Ann Arbor, Mich.; James N. Greear, Jr., Reno, Nev.; George M. Haik, New Orleans; Peter C. Kronfeld, Chicago; Jay G. Linn, Sr., Pittsburgh; A. E. Maumenee, Baltimore; Robert N. Shaffer, San Francisco; Kenneth C. Swan, Portland, Oregon; Georgiana Dvorak Theobald, Chicago.

Dr. Knighton was in charge of the exhibit and was assisted with the testing by Dr. Jay G. Linn, Sr., Dr. Sam Jones, Ethel Hannon, R.N., and Virginia S. Boyce.

ACTIVITIES IN MICHIGAN

An increased demand for vision screening programs in the schools is noted in the 1955 report of the Michigan Department of Health. During the year 200,000 children had vision tests, 50 new technicians were trained for making these tests in short courses at the state teachers colleges, and 100 technicians took regional refresher courses. A high correlation between referrals from the Massachusetts Vision Test and professional findings was shown in a study made of 2,000 children. Eighty-five per cent of those referred are now getting treatment for eye defects or following a corrective program.

In an effort to encourage the control of oxygen for premature babies, and prevent the development of retrolental fibroplasia, the department purchased oxygen analyzers for demonstration purposes in hospitals. The number of children with severe visual handicaps as listed on the state register increased by 38 per cent during 1955, making a total of 743.

Social and Emotional Adjustment of School Children with Eye Handicaps
A Multi-Discipline Approach

A panel of experts demonstrates how special services and the team approach are necessary for best results in working with the partially seeing.*

Chairman: John C. Nebo, state consultant, Education for Exceptional Children, Visiting Counselors' Program, Illinois Department of Public Instruction.

Moderator: Hester C. Burbridge, director of special services, Evanston, Illinois.

Participants (all from School District 65, Evanston): Calvin K. Claus, psychologist; Mrs. Donald Counihan, speech correctionist; Robert M. Gluckman, M.D., consulting child psychiatrist; Lawrence Merl, visiting counselor; Mrs. Adelyn S. Park, teacher of the partially seeing.

A PANEL discussion on a multi-discipline approach to any subject presupposes that the participants are competent in their respective disciplines and that each has knowledge of the role of each of the other disciplines. In planning for this panel, it was decided that the focus should be on one partially seeing child so that, through his experience in school, it could be demonstrated that various services may be necessary after medical care has been given; that these services can be given and that a team approach is necessary for best results.

Personnel from the Evanston elementary schools were asked to present the discussion because of the number of services available to partially seeing children in that school district; because each of the participants has been employed there for several years; and because they are familiar with the team approach to the problems of children, having worked together with the child whose experience was the focus of the meeting. Their high degree of competency was another factor in the choice.

After outlining the services for exceptional children which are part of the Division of Special Services in Evanston, Miss Burbridge emphasized the division's responsibility to supplement the work of all personnel in the school and to work closely with them, as well as with parents, agencies and individuals in the community who are interested in children. She complimented the school nurses, who are responsible for vision screening, for their support and cooperation.

After a child is found by an eye specialist to be partially seeing, the principal of the school which the child attends refers the child to Miss Burbridge for consideration of placement.

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, Chicago, Illinois, March 27, 1956.

"We need the social history," Miss Burbridge commented. "We want to know as much about the child's development as possible. We need the medical information from the attending ophthalmologist. We need psychological testing so that we can understand what the potentials are. Then, as a group, we decide whether our program is the most desirable one for the child on the basis of his needs.

"With that in mind, then, we should like to present the story of a boy in Evanston to show how this child was studied, how his needs were considered, and how changes were made when necessary."

Case Conference

At this point the members of the panel assumed the roles they play in an actual case conference. The following discussion is a telescoping of several such conferences and of many other contacts between the various members of the team. It represents knowledge and understanding gained over a period of two and one-half years since Dick was first referred to the division. Since the purpose of the panel was to demonstrate the multi-discipline approach, the process of the case conference and the interaction of the team members are emphasized.

Miss Burbridge, in her role as director of special services, presided; Mr. Merl, school social worker, was asked to summarize the background of Dick and his family. Significant in the child's social and emotional development were a mother who died at childbirth, after a seven-month pregnancy and toxemia in the sixth month; formative years spent with a paternal grandmother who was very possessive of both the boy and his father; domination by the grandmother in spite of the father's attempt to help Dick mature; a marked speech defect; the father's remarriage to an adequate stepmother (without the grandmother's knowledge) when the boy was four; a half brother five years younger; adequate living conditions and physical care and, of course, the vision impairment.

Mrs. Park, teacher of the partially seeing, summarized the facts about the child's physical difficulty including the diagnosis, surgery performed, present condition of the eyes, vision with and without glasses, and prognosis; also the doctor's recommendation as to the amount of eye work permissible.

Mr. Claus, to whom Dick had been referred for psychological testing, reported that he had found the child eligible for special class placement. However, he added that his estimate of intelligence was minimal, since the child was being evaluated with a test instrument that had been standardized on normally seeing people. There were also evidences of emotional difficulty that were affecting Dick's intellectual efficiency. It was recommended that the child have help from the school social worker.

First Experiences in Class

Mrs. Park summarized Dick's initial experiences in the special class. She explained that most children with vision impairment are registered in regular classrooms and come to the special room as a resource center. Reports on Dick, however, indicated that he had more than a visual problem—that possibly for many months he would need to remain in the special room before adjusting to a regular class situation. Mrs. Park described

Dick's behavior in the class, his dependency on her and inability to relate to other children, his speech difficulty and the means she used to build his feelings of security. She requested help from the school social worker and had several conferences with him before he began seeing the child. Together Mrs. Park and Mr. Merl evaluated Dick's ability to accept a relationship with another adult and when they felt he was ready, the speech correctionist was brought into the picture. From then on the three worked closely together.

Mr. Merl then described his initial approach to the situation. In addition to having several conferences with Mrs. Park, he spent time in her room visiting and observing, so that he was a familiar figure to the boy. Mrs. Park and he then arranged for a referral through the principal so that the latter would know of the situation. After several conferences with Dick, Mr. Merl saw the parents, and has continued to see them periodically. Fortunately, they have been most interested and cooperative.

Speech Correction

Mrs. Counihan, reporting on her work with Dick, reviewed some of the usual causes of speech difficulty and explained that a hearing defect had been ruled out in this instance because several audiometric tests had revealed normal hearing. Lack of intelligence was also ruled out because of the findings of the psychologist. Operating in Dick's background was minimal stimulation for language learning in the environment. He had had little reason to express his needs because his grandmother had anticipated them. She had spoon-fed him until he was four years old and this lack of opportunity for development of good muscle activity of tongue, lip and jaw was operating in his speech defect. Because of his visual difficulty he did not have the normal child's opportunity of watching and imitating his mother's mouth movements.

Dick had had a group speech correction experience, but at this time the continued severity of his impairment indicated need for individual work. Mrs. Park, Mr. Merl and Mrs. Counihan worked closely on this problem. A speech notebook was kept and given to the mother so that she would be informed of progress. In the beginning Dick could not look at himself in the mirror during tongue exercises and these were delayed until he could accept facing himself.

Evidence of Mental Growth

After a period of time a reexamination of the child by the psychologist was indicated, not only to ascertain the degree of intellectual development but also to evaluate the movement in behavior patterns. Mr. Claus reported that during the two years and three months between tests a gain of approximately three-and-one-half years in mental age growth had occurred, substantiating the earlier suspicion that the first measure of ability was minimal.

Despite the difficulty of administering projective tests to a visually handicapped child, with modification of some of them Mr. Claus found that there were present in Dick five different outlooks on life. Two of these came out in greater strength. One was a tendency toward feeling that he was to blame for much of his behavior. There was a considerably inhibited

impulse to be aggressive, and he had not found any way of expressing himself aggressively in a socially acceptable manner. There was concern about bodily injury which is a part of the general picture of one who has such a disability. With his tendency to withdraw from social contact, the child also felt rejection by others. It seemed that Dick's personality difficulties were excessive even for one with such a handicap. Mr. Claus therefore had recommended more extensive evaluation by the school social worker and the psychiatrist.

Importance of Teacher's Role

At this point Miss Burbridge brought the discussion back to the teacher, stressing her important role in Dick's life, and she asked Mrs. Park to describe the boy's development in the classroom. By mid-January it had been decided that Dick could leave the special class to go to a regular third grade for certain subjects such as music, gym and social studies. This was arranged for after a number of conferences with the regular classroom teacher so that she would be aware of the child's limitations and potentials. After an initial period of difficulty (at times Dick could only stand outside the door of the regular classroom) he was able to enjoy being with the regular group. He absorbed much from this association but at the end of the first year he had not developed sufficiently to be passed to a regular fourth grade. It was felt that he should repeat the third grade, spending much more time in the regular classroom. When Mrs. Park discussed this plan with him he seemed pleased and relieved.

In the fall of Dick's second year with special services the team saw evidence of more maturing. He went to the regular classroom willingly, walking with assurance. By spring there were other signs of his reaching out for independence and although there were lapses, he continued to grow. Mrs. Park had felt that he needed contact with her and she had been reading lessons to him. He finally asked if he could not do as other children did—listen to the wire recorder on which Mrs. Park dictated the lessons. At this time he began to use the talking book materials. Such good rapport had been established that he talked with Mrs. Park readily. At the end of that year he was working at regular third grade level and although he was a little weak in some subjects the team felt he was ready for fourth grade.

During this past year Dick has been thoroughly accepted by the pupils in his regular classroom and he is enjoying it. When he first returned to school he went to Mrs. Park and shook hands —something he never could have done before. He also announced that he was traveling alone on the bus. He is less tense and apprehensive, except on the playground where he plays only games that he feels will result in no bodily harm. He is reading independently and asks for library books; has begun to learn touch typing. His achievement tests indicate he is at a fourth grade level and is ready to proceed. In fact, he is almost at regular fifth grade educational age. Mrs. Park has remained in constant contact with the regular classroom teacher and the other special teachers. The gym teacher, for example, understanding Dick's fears, allows him to stand back. He usually watches a new game first and then enters in but he always wants first to see what happens. He participates in

square dancing and has even attempted to play ball.

Mr. Merl pointed out certain of Dick's characteristics that tie in with his impaired vision. He cannot form close relationships as quickly as others. In times past at home, before going to sleep he would lie awake with his eyes closed, explaining that he was looking at pictures that were pleasant. In Mr. Merl's opinion this was Dick's method of being in a world which was not frightening or challenging. He has also used his little brother to test out situations before he was able or willing to do the same things. Mr. Merl's relationship with Dick has been a progressively better one. At the beginning they were just in a room together, but now Dick talks readily and is usually understandable. Mr. Merl mentioned another member of the team, the family pediatrician, through whom Dr. Gluckman's psychiatric help was requested.

Personality Development

Dr. Gluckman summarized Dick's personality development as it relates to his handicap. In working with a handicapped child, he explained, there is need for a more total approach, not only in relation to education but also in consideration of his need to be able to function in a world that demands of him the same kind of performance and the same kind of adaptive capacity that it demands of everybody else who doesn't have this handicap.

Children or adults with sensory handicaps are different psychologically from those who have handicaps of an orthopedic or other physical nature, because it is through our senses that we establish relationship with our environment and with the people in it. It is through association with our environment and our differentiation of ourselves from it that we establish our identity as individuals. Therefore, when there is a handicap of a sensory nature there is an impairment of capacity for establishing relationships and one's own identity in the world. The energy demands and the adaptive demands on an individual are greater when he has a sensory handicap.

Dick is a child who tended to withdraw from relationships with others prior to having some individualized help. This withdrawal, Dr. Gluckman pointed out, is a mechanism often seen in individuals who have not established adequate relationship with the environment, or who have found that the demand upon them is greater than their capacity to respond. This child's withdrawing into visual imagery of a fantasy nature is significant; it was easier and more comfortable for him. It is significant because it impairs his relationships to the world.

Another important thing about the boy is that he now has corrected vision which is fairly good. When he was very young he had only 10 per cent central vision and no peripheral vision. One's relationships in the world are established from the very beginning of life. Most important to a child, in terms of his differentiation of himself from the outside world, and in establishing his personality, is his contact with the mother. This is purely sensory and primarily involves vision, tactile and auditory sensation.

Effect of Overprotection

When a child has a severe handicap it is very easy for a parent (in this instance a grandparent) to become infantilizing and overprotective. We

should not condemn such a parent because this is a sympathetic tendency, a feeling that the individual needs this kind of protectiveness. The fact that overprotection prevents the child from developing his personality strengths is not understood and therefore added to the initial handicap is another—immaturity. This affects the child's development when he attempts to adapt to a demanding world.

The child's adaptive capacity, his ability to develop comfortable relationships to others, is impaired by his not being able to form perceptual image concepts. He withdraws into fantasy life and finds more comfort with fantasy playmates than with real ones. This factor probably operates in a significant number of children with such handicaps.

Dr. Gluckman commented on what has taken place in Dick's progress through the opportunity given by special services. The child was placed in a situation where the demands for formal adaptation were decreased, where he was allowed to progress in relation to his ability to do so, with encouragement and help of a special nature. This help reduced the energy demand upon him, and allowed him to use his mental and psychic energy for growth.

In his contact with the social worker he had the opportunity to experience what it would mean to become an individual unto himself. Only after he had been in the special education program for a period of time was this boy able to hold up his head, to look at the world about him, to feel a sense of self-esteem, to experience himself as an individual, separate and important as other individuals about him who do not have a visual handicap.

It is important to help blind or partially seeing children develop as complete a concept as possible of the world about them through descriptive visual aid, word pictures. Thus they develop a better understanding of themselves.

Visual Imitation

Dr. Gluckman believes that the extent to which visual imitation plays a part in speech formation has not been appreciated. Imitation comes through vision as much as through hearing, and it is one of the most important factors in the development of one's personality. We say, "Isn't he just like his father?" or "Isn't he just like his mother?" We think sometimes that such traits are inherited, forgetting that a child develops a very acute imitative capacity.

Recommendations for the Future

Miss Burbridge asked the panel to consider whether Dick should continue in special services this year or if another plan should be made. She asked them to consider his growth in his academic program, his increasing security in both regular and special classes, and his improved speech. Dr. Gluckman recommended continuance of special services, pointing out that Dick has just tasted help and placing him in a too-demanding situation may possibly cause a regression. There is need for crystallizing the help already given. Mrs. Park agreed that the gains should be consolidated since Dick is just beginning to unfold. The other members of the team were unanimous in this decision.

Questions and Answers

In the question period that followed this presentation Mr. Merl elaborated on the help given to Dick's parents.

Commenting that they are keenly aware of the problems and needs, he outlined the stages of encouragement and discouragement they have experienced. He felt that one of his main functions has been to review with them periodically the progress made and to help them accept Dick in his various stages of development.

Miss Burbridge said that in Evanston there is an evaluative conference on each child in special services at least once a year; on some pupils there may be three or four. In addition to the team represented on the panel, others may be drawn into the conference—the regular classroom teacher, nurse, principal, agency or other professional personnel—anyone working with the child who can add to the understanding of his problem.

RESEARCH AND THE PUBLIC

"Research is a dignified profession to be pursued only by the consecrated and inspired, in quietude, at a leisurely pace, and away from prying eyes. It cannot be placed on a business footing where one new fact is to be returned for each quantum of dollars invested."

Louis N. Katz, M.D. of the department of cardiovascular research, Michael Reese Hospital, Chicago, declared in a recent address that the public entertains many misconceptions about medical research, when patience and moral support as well as funds are needed for long-term investigations. His address, published in the January 31 issue of the *Journal* of the American Medical Association, warned against modern ballyhoo and the demand for results.

"Great discoveries are not produced on the assembly line," he declared. "Only duplicates can be so manufactured. The original must come about through the deliberate activity of a creative mind." Advances will continue to be forthcoming if the public will "utilize its energies to help recruit the creative minds, to prepare the proper climate for their work in terms of space, equipment, assistants, funds, and social acceptance, and then sit back and patiently await results."

Too many people, Dr. Katz said, confuse bigness with goodness. "Worse still, research men work in a fishbowl today. Their reports are avidly inspected by the lay press, radio, television, and magazines." Others are "helpless victims of publicity" because of the institutional pressures to "sell the public."

Dr. Katz criticized the current practice of first building an elaborate plant and acquiring tools, and then searching madly for ideas. "Research is not gadgeteering. It is the pursuit of ideas."

HAZARDS IN WELDING

In response to a query from a California physician, an expert's opinion about protection of the eyes in welding was printed in the February 4, 1956 issue of the *Journal of the American Medical Association*. While gas and electric spot welding ordinarily cause little ultraviolet damage, he said, "arc welding is a prime source of prospective injury. Foremost, the irritant damage is from short ultraviolet rays, but some injury may arise directly from infrared rays."

Ordinary lenses, including some optical glass, are wholly ineffective in protecting the eyes in many welding operations, and workers near arc-welding areas may be damaged at distances up to about 30 feet. Intense light itself, and reflected ultra-violet rays from walls not treated with ray-absorbing paint may cause eye irritation.

SCHOOL VISION SCREENING IN ROCKFORD

EDNA Z. WELKER, R.N.

School Nurse
Rockford, Illinois, Public Schools

A project under the guidance of a joint professional advisory committee and the Illinois Society for the Prevention of Blindness has utilized volunteer services successfully.*

IT IS always rewarding to take part in a health service project when the time and effort involved pay even bigger dividends than anticipated. We of the Rockford Public Schools have seen this happen since we began four years ago to use trained volunteers for vision screening of school children. We nurses had ordered two Massachusetts Vision Test kits which we expected to use ourselves. Before we got started, Mr. W. R. McIntosh was welcomed as our new superintendent of schools. He had had experience in another city with the services offered by the Illinois Society for the Prevention of Blindness and he invited them to consult with us.

Pupils in grades 1–6 having a visual problem needing special educational services are provided for on the cooperative plan at the Kishwaukee School. Reading, arithmetic, and other visual tasks are taught in the sight-saving room. For other subjects, the pupils participate in the regular classrooms. Pupils in grades 7–12 are part of the regular classes. Their differing needs are provided for during their study periods by the traveling teacher who comes to their school; by student readers; and by materials prepared for them in large type or tape-recorded.

Plan for Screening

Our planning for the vision screening included:

Securing approval of the county medical society and the county optometric society.

Creation of a joint professional committee made up of appointees from each of these professional organizations. This committee advises on technical and professional matters.

Creation of a citizens' committee to be responsible for the over-all policies, with emphasis on volunteer participation.

We were fortunate indeed to secure as chairman of the citizens' committee Mrs. A. E. Alverson, who has for many years been active in health and welfare work in our community and who is also on the advisory council of the Illinois Society.

When the joint professional committee asked us to give a trial demonstration Miss Mary Askew, the consultant from the Illinois Society, trained our six nurses and we screened a limited number of children. The results were evaluated by the committee and we were then given approval for a program to include alter-

* Presented at the Annual Conference of the National Society for the Prevention of Blindness, Chicago, Illinois, March 26, 1956.

nate grades, 1–3–5–7–9. This began in the fall of 1952, with Mrs. Ethel Olson as supervising nurse and program coordinator. Through the health chairman of the Rockford Council of PTA and the placement chairman of the Junior League, 24 volunteers were selected and trained in groups of six.

Training Program

The training consists of two days of interpretation, demonstration and practice, during which each group screens about 150 children. The volunteers have continued to work one day each week—as long as needed. Ten or 12 recruits have been trained each succeeding year to replace those who drop out. The volunteers not only screen pupils but help with demonstrations to teachers in our 28 elementary schools, as well as to the PTA's, the Northern Illinois Optometric Association and other community groups.

We have planned a spring round-up of volunteers as an annual event—a Dutch-treat luncheon at which they hear reports on the results of their work and are presented with certificates in recognition of their services.

Results of Screening

It is interesting to note that the findings on the screenings for the first two years were about identical (for different groups of children, but the same grades). At the end of this period more than 12,000 children had been screened. Over 1,000, or approximately 8 per cent of the total enrollment in grades 1, 3, 5, 7 and 9 were referred for professional care. Ninety-three per cent of these needed glasses or had a verified visual problem. Another 2,000, or 14 per cent, were found to be already under professional care.

About 70 per cent of the reports from the doctors on the referrals have been returned to us. These give helpful information for the nurse and the teacher regarding the child's problem.

During the third year, when we were for the first time screening pupils who had all been screened two years previously, we found that 16 per cent were under professional care—a larger block. We referred an additional 8 per cent—636 pupils. Adding these two percentages we find that we have discovered approximately the 25 per cent that the National Society for the Prevention of Blindness says we may expect—one out of four.

The total referrals screened under our program ran about as follows: 78.5 per cent for visual acuity; 1.5 per cent with plus sphere lens; 20 per cent for muscle balance.

Follow Through

We find that parents of 67 per cent of the pupils referred get professional care for the child within a period of a few months following receipt of the letter which is mailed to them. In the case of the other 33 per cent the nurse, if she is not acquainted with the home situation, confers with the pupil, the teacher, the principal and other school personnel in an attempt to find the reasons for lack of care. Telephone calls and home visits are made. Last school year our nurses reported 90 home visits in which the primary purpose was to motivate parents to secure professional care. According to the need, arrangements are made for about 20 children each year to have care on a free or part-pay basis. We have ample resources for this help.

As a result of these efforts we raised the 67 per cent under professional care

to 71 per cent by the end of the school year. Of the remaining 29 per cent we find that

. . . about 2 per cent move out of town.

. . . about 14 per cent of those not getting care are considered borderline referrals by the school nurse and therefore will be rescreened the next year rather than pressured for follow-up.

. . . about 42 per cent of the parents concerned seem to have every intention of following through, but can't be rushed.

. . . about 31 per cent who could apparently afford care are not taking the need seriously.

. . . the remaining 11 per cent of those not getting care appear to be in need of financial assistance but do not seem ready to discuss this problem.

Families in the latter three groups are the ones on whom the nurses continue to concentrate as time permits.

The help of our well-trained volunteers has made it possible to serve more children more frequently, in better follow-through, in improved communication with teachers, and in continuing evaluation. We have found work with volunteers, the Illinois Society and our own local committee not only a stimulus to us in the schools but to the entire community.

Workshop Project

Miss Helen Gibbons, itinerant teacher for the partially seeing in Rockford, and I worked as a team for two weeks last June on a workshop project in which we enlisted the help of our joint professional committee. Following is a brief report:

Report by Helen Gibbons, itinerant teacher for the partially seeing, Rockford, Illinois: Our curriculum coordinating council in Rockford sponsors various workshops each June in which teachers and nurses have an opportunity for more intensive work and study in areas for which there is inadequate time during the school year. Mrs. Welker and I selected the Guidance Workshop and it was natural for us to work together. Some of our main concerns were these:

Have all the partially seeing pupils who would benefit educationally by special help been identified?

Are the nurses aware of the pupils for whom very close professional eye supervision is vitally necessary? We knew that in a few instances there would be a lack of awareness or cooperation on the part of the parents or guardians but if the school nurse was aware of the need for seeing that the pupil kept in close touch with his doctor, she could spend more time working with the family concerned.

Do all the doctors know about our special educational services for the partially seeing? These include a cooperative room for pupils in grades 1–6 and assistance from the traveling teacher for pupils in grades 7–12.

Mrs. Welker and I began by reviewing carefully some 400 reports for the school year received by the nurses from the doctors. These are for pupils referred for the first time that year. We also looked carefully through the reports returned by doctors for pupils already under professional care. Nurses got over 70 per cent return on these. Since time and cost of postage do not permit requesting a report annually on pupils under professional care, we wanted to think through how we could keep close track of those who might have a progressive visual handicap or who for some other reason were ur-

gently in need of frequent rechecks by their doctors. We found that the greatest incidence of referrals was on the fifth grade level.

After gathering all this data we invited the members of our joint professional committee to an informal lunch at the Board of Education offices. There doctors reviewed reports on some 50 children whose records we had chosen because we thought, on the basis of high correction, low vision or vision in one eye, they might be possible candidates for visual services. The standards for admittance to classes for the partially seeing were used as criteria for selection.

The joint professional committee selected 11 cases for further follow-up —that is, for further communication with the attending doctor, who was asked in each case whether the child would benefit by special services for the partially seeing. If such recommendation was made the school nurse turned over the report to me and I contacted the principal and parents. The purpose of these conferences was to indicate the reason for placement.

We are pleased that our joint professional committee is now planning to meet each spring to review records for possible visual services. Of course some cases are referred before spring but by this routine we will be certain that all pupils who would benefit by special help are identified.

School nurses have expressed appreciation for the guidance of the joint professional committee in helping to identify pupils who have had professional eye care and need to be kept under particularly close professional supervision. As previously mentioned, over 70 per cent of new referrals made each year by the nurses get professional care within the year. There is follow-up on the remainder where the need seems quite urgent rather than where the referral seems to have been borderline.

During these recent years we have become aware of greatly increased interest in eye care on the part of pupils, school personnel, volunteers, parents. We have also felt the increasing interest of professional men in our schools and what they are doing to serve our children.

BLIND HAVE NORMAL IQ

Blind children are a year or two behind seeing children in reaching a given work level, but as a group show the same intelligence profile, according to studies made at the Perkins School for the Blind. For many years the pupils have been given a modified Binet test and also achievement tests to check on how much learning has been retained. The kindergartners lag behind the norm for seeing children, but after about five years in school blind children, as demonstrated in a group of 447, actually have a greater proportion in the high ranges over 116 I.Q. than Terman's seeing norm group based on about 3,000 children.

NEW FILM ON VISION SCREENING

A captivating child named Becky is the star of a film, "Magic in the Seeing," just completed by the Michigan Department of Health. The movie was filmed at the Central Michigan College elementary school to familiarize the public with the purposes of vision screening with the Massachusetts Vision Test. Its theme is: "Through the eyes of a child the world is still quite new . . . and most of the magic is in the seeing."

The film is 16 mm., black and white, and runs 11 minutes. Price $40.00. Preview prints may be obtained by writing to Capital Film Service, 224 Abbott Road, East Lansing, Michigan.

NOTES AND COMMENT

• Eye Safeguards for Athletes

Better protection of the eyes in certain sports is urged by Dr. Max M. Novich of Newark, N. J. in an article, "A Physician Looks at Athletics" in the *Journal of the American Medical Association* for June 16. When a player has useful vision in only one eye he should not risk total blindness by entering sports involving a chance of physical injury, Dr. Novich says.

Writing mainly of the responsibility of the team doctor in schools and colleges, Dr. Novich declares that all players and candidates should have a complete visual examination. Baseball and track are safe sports for those with limited vision, but boxing should be forbidden to the high myopic who cannot forestall blows to the eyes and thus may incur retinal detachment. Shatterproof lenses, if a correction is used, should be worn in basketball and football. In boxing first aid must be given by the physician, not the second. If the pupils are persistently dilated or irregular and there is impaired reaction to light the injured person should immediately be hospitalized for evaluation and treatment.

• Follow-Through Record

Nearly every Philadelphia school child reported as having faulty vision received treatment during the school year 1954–1955. In its last report the division of medical services of the public school system stressed the high incidence of defective vision. Of the 78,812 pupils with remediable defects, 8,242 had visual troubles, and 98.5 per cent of this small army received treatment. About half the cases were handled by the school eye clinics at little or no charge, and all cases were followed up till closed.

Of 723 cases of strabismus 65 per cent received treatment. Among those referred for refraction the examiners found 207 pupils with suspected serious conditions, and sent them to hospital clinics for diagnostic studies and possible surgery.

All adult employes of the school system have periodic medical checkups, and 12 per cent of about 5,000 employes had eye defects. Among the women this was the chief physical defect, but third on the list for males.

• Optical Aids Program

Persons with subnormal vision who can be helped by some of the new optical devices have been served since June 1955 by the Lighthouse Optical Aids Service in Chicago. The program is directed by five ophthalmologists appointed by the Chicago Ophthalmological Society, five optometrists appointed by the Illinois Optometric Association, and the Chicago Lighthouse for the Blind.

The Lighthouse has assigned a room for this service in its new building, and handles the financing and operating details of the program. Most patients are treated gratis, and others are charged on a cost basis. Applicants who have not had a prior examination by an eye specialist are examined by Dr. Charles A. Learsy, ophthalmological consultant to the Lighthouse.

One of the devices which has proved most useful is the insertion of a microscopic lens in the lower part of a carrier lens which includes the pa-

tient's distance prescription. Patients are trained in the use of their optical aids by the staff optometrist, Dr. Alfred A. Rosenbloom, Jr. Even severely handicapped persons, fitted with the powerful new aids, are often enabled to read.

• New York Syphilis Survey

Migratory workers in upstate New York given serologic tests for syphilis during the summer of 1955 showed a positive rate of 23 per cent, according to *Health News* of November 1955. The survey covered eight counties and was made by the Public Health Service with the cooperation of district health officers in Syracuse, Geneva and Lockport.

Examinations were made of 5,021 workers, of whom 812 had strongly positive tests and 322 doubtful or weakly positive reactions. A total of 772 patients were given treatment in their camps.

Selected areas of Syracuse were surveyed during November, and serologic reports on 2,000 individuals showed an incidence of positive reactions of about 7.5 per cent.

• Mobile Clinic Reports

An interesting cross-section of eye conditions in a rural area is revealed in reports of the mobile eye clinic operated by the Pennsylvania Association for the Blind in cooperation with the State Council for the Blind. During recent stops in Bedford and Somerset counties the staff examined 772 persons referred by school and social agencies. Of this selected group only 40 were found normal, and only 87 of the exactly 500 persons with presbyopia or refractive errors were wearing adequate corrections. Almost a third of those visiting the clinic had never before had an eye examination.

There were 469 women referred to the clinic and 303 men. The majority of those examined were over 50 years of age, and all 458 had visual troubles. Including the group over 40, only three of whom were normal, the examiners found 372 with presbyopia, 77 with cataract, 18 cases of macular degeneration and 15 of glaucoma.

In the age group under 16 years 75 of the 97 examined had defects, which included 50 cases of refractive errors and 18 of strabismus. In the 16 to 39 age group 88 of 107 examined showed deficiencies, of which 61 were refractive. For the whole series a variety of pathological conditions was found, including eight cases of optic atrophy, seven of conjunctivitis, six of pterygium and four of uveitis.

The clinic staff gave immediate treatment to 444 persons, and arranged later treatment for 50 others.

• Eye Accidents in St. Louis

As part of its Safe Play program the St. Louis Society for the Blind made a survey of children's eye accidents serious enough to require hospital care. Over a six months' period 103 children 16 years and younger were taken to the 14 major hospitals of the St. Louis area with eye injuries which were as a rule avoidable results of unsupervised play with dangerous toys and weapons. Twice as many boys as girls were involved, and four-fifths of the lesions were in the eye itself with one-fifth on the lid or brow.

Sharp objects (sticks, wire, coat hanger, knife, thrown book) caused 23 accidents, and explosives (guns, fireworks, railroad flare) were second on the list with nine injuries. Blows on

the eye sent eight children to a hospital, and falls, usually against sharp objects, seven others. Toy weapons, BB guns and arrows, injured the eyes of seven.

The fact that about 200 St. Louis children have eyes damaged or destroyed every year, largely in avoidable accidents, was used by the Society in its pre-vacation program urging safe play habits. Robert A. Smith, recent executive director, organized a wide campaign of publicity, which included a film, "A World to See" for distribution to the intermediate school grades, and spot announcements for radio and television reminding children and their parents of the dangers of BB guns, fireworks, sharp objects and toy weapons.

• Vast Extent of Trachoma

Four hundred million people, a sixth of the world's population, suffer from trachoma. The fight against this universal eye disease is directed by ophthalmologists from several countries who compose the Expert Committee on Trachoma of the World Health Organization. At their second meeting, held in Geneva in September 1955, the committee mapped out the next moves in their campaign.

Fourteen new countries, including China, India, and Indonesia, have asked WHO to help them with anti-trachoma programs. There are other areas where work is needed but not yet planned, such as parts of western Australia where trachoma incidence is 50 per cent.

Much has been accomplished in countries where programs have been initiated. In Formosa 1,200,000 people have received treatment, and in Morocco 2,200,000. Progress has been made on the medical side. Differential diagnosis of trachoma is now possible. Mass campaigns against epidemic conjunctivitis associated with trachoma in some countries have cut down these epidemics and the incidence of trachoma. Effective dosages of antibiotics have been determined with resulting economies.

The Expert Committee recommended that closer collaboration be encouraged between ophthalmologists and virologists in studying methods of cultivating the trachoma virus; that research be coordinated on an international basis; and that training courses be given to personnel who will fight the disease in various countries.

HOXSEY HOAX

The federal Food and Drug Administration has issued a public warning against the so-called Hoxsey treatment for internal cancer, which it finds "represents a gross deception to the consumer. It is imminently dangerous to rely upon it in neglect of competent and rational treatment."

Since persons with tumor of the eye have occasionally resorted to the Hoxsey treatment, the report is of special interest to prevention of blindness workers.

For the sum of $460 the patient at a Hoxsey clinic is given a superficial examination and supplied with pills or liquid medicines. Medical analysis shows these nostrums to contain no ingredient of value in treating cancer, and one ingredient, potassium iodide, is known to accelerate the growth of some cancers.

"The Food and Drug Administration," says the public warning issued in April, 1956, "has conducted a

thorough and long-continuing investigation of Hoxsey's treatment . . . and has not found a single verified cure of internal cancer effected by the Hoxsey treatment. In addition, the National Cancer Institute of the United States Public Health Service has reviewed case histories submitted by Hoxsey and advised him that the cases provided no evidence that the Hoxsey treatment has any value in the treatment of internal cancer."

Harry M. Hoxsey has been selling his nostrums for at least 30 years, and three times was convicted and fined $100 in the state of Illinois for practicing medicine without a license. In 1930 the state of Iowa obtained a perpetual injunction forbidding him to practice.

When federal action against Hoxsey, his clinic and his staff was taken late in 1950, a long legal fight ensued. The U. S. Court of Appeals for the Fifth District, at New Orleans, finally issued a mandate forbidding shipping the Hoxsey medicines in interstate commerce. During the hearings more than 50 medical witnesses and cancer experts testified for the government. The court ruled unanimously that diagnosis of cancer requires a biopsy and that the testimony of lay witnesses that they had cancer or were cured of cancer was worthless.

Since the injunctive decree came into force, Hoxsey has announced publicly that he is ignoring it and has greatly increased the promotion of his treatment. The Food and Drug Administration is therefore developing a contempt of court proceeding for these violations, facing another round of legal delays and appeals.

"Cancer can be cured only through surgery or radiation," it reminds those afflicted with the disease. "Death from cancer is inevitable when cancer patients fail to obtain proper medical treatment. . . ."

Joint Conference of NSPB and Pan American Association of Ophthalmology

The next Annual Conference of the National Society for the Prevention of Blindness will be a joint meeting with the Pan American Association of Ophthalmology, and will be held at the Hotel Statler, New York City, April 7–10, 1957.

The eye specialists will hold sessions in the mornings, while the National Society will present its programs in the afternoons.

Dr. Brittain F. Payne, New York City, president of the Pan American Association, and Dr. Moacyr E. Alvaro, Sao Paulo, Brazil, executive director, have announced the appointment of the following local committees, with their chairmen: *program*, Dr. John M. McLean, New York City; *motion pictures*, Dr. Wendell L. Hughes, Hempstead; *entertainment and special arrangements*, Dr. Elizabeth Constantine, New York City; *registration and housing*, Dr. Girolamo Bonaccolto, New York City; and *press and public relations*, Dr. Frank Constantine, New York City.

Registration will start Sunday, April 7, at 9 A.M. Opening ceremonies will take place at a luncheon that day at which there will be welcoming talks by Mayor Robert F. Wagner; Dr. Frank B. Berry, assistant for medical affairs to the federal Secretary of Defense; and Major General Dan C. Ogle, Surgeon General of the U. S. Air Force.

AROUND THE WORLD

EGYPT

War on Trachoma. For the first time in its history Egypt is launching a national drive against communicable eye diseases. The country is saturated with acute ophthalmias and trachoma, according to the eye specialists who discussed the situation at the last session of the Ophthalmological Society of Egypt. It is rare to find a two-year-old child with a healthy conjunctiva, and 95 per cent of the school-age children in the poorer districts have trachoma, it was reported.

The federal government started in 1955 a two-year pilot project in the Kaliub district, in cooperation with the World Health Organization and the United Nations Children's Fund, which have contributed 57,000 pounds sterling to the work. The prophylactic work will be concentrated on children, since the epidemic ophthalmias which attack almost all children under six years of age cause 80 per cent of the blindness in Egypt today.

In Egypt there is a regular spring epidemic of Koch-Weeks conjunctivitis and a fall epidemic of the gonorrheal type. The Koch-Weeks bacillus persists in the conjunctival sac for months. The common house fly is a vector.

GREAT BRITAIN

Duke-Elder Honored. To celebrate the completion of the seventh and last volume of Sir Stewart Duke-Elder's classic *Textbook of Ophthalmology*, his colleagues presented him with his portrait, painted by Mr. Ruskin Spear, R.A. The presentation was made jointly by the Ophthalmological Society of the United Kingdom and the Faculty of Ophthalmologists during the annual meeting of the Society late in April 1956. Mr. O. Gayer Morgan, president of the Society, in a graceful tribute to Sir Stewart, said that he had probably done more for ophthalmology than anyone since Sir William Bowman.

Dazzle and Glare. Visual factors in traffic accidents were discussed by experts from several countries during the April 1956 meeting of the Ergonomics Research Society at Bristol University. With an annual traffic death toll of 5,000, England has been pushing research in methods of cutting down dazzle and glare; of getting more light on the road and less in the driver's eyes. Street lighting with a restricted beam largely eliminates glare, but cuts down visibility between lights. Experiments with restricted beam headlights are being carried out; surveys of dazzle showed that it was chiefly due to badly aimed or deteriorated headlights. The experts pointed out that in Washington, D. C., where inspection of headlights is compulsory, only 2 per cent had a glare over 2,000 candles, while in England the percentage was 20.

There was general agreement that polarized light is the ideal solution for glare, but that it is impracticable at the moment. Experts agreed that tinted windshields and glasses, or anything tending to reduce vision, should be avoided.

Davy Crockett Craze. A group of eminent ophthalmologists has written to the *British Medical Journal* to report

that since the introduction of the Davy Crockett television programs there has been a great increase in eye injuries among children. Many have lost all useful vision in eyes injured by air guns and arrows. The physicians urge that some effective action be taken against this mania for dangerous weapons.

INDIA

Eye Institute Opened. The Aligarh Muslim University Institute of Ophthalmology was officially opened in November 1955 by Prime Minister Sri Jawahar Lal Nehru. The Institute, housed in a handsome new building, will be a national center for research and postgraduate education in ophthalmology, and will work closely with the Gandhi Eye Hospital at Aligarh. More than 2,000 distinguished guests from all over India attended the dedication ceremony, which also celebrated the silver jubilee of the Gandhi Eye Hospital.

Bengal Work Revived. Under the stimulus of its silver jubilee celebrated late in 1955, the Association for the Prevention of Blindness, Bengal, is reactivating some of the services dropped during the turbulent period of war and national struggles. The ophthalmic center in Calcutta, inactive for the last decade, has resumed its vision screening of school children, and there are plans for increasing the mobile units serving the villages.

The Association was founded in 1930, largely under the inspiration of Mrs. Winifred Holt Mather, who was one of the founders of the U. S. National Society. Its anniversary report describes the pioneer work of five traveling dispensaries, which during the last 20 years have given eye treatment to about 10,000,000 villagers and surgery to more than 30,000. Nearly half the operations were for cataract, which in Bengal is a leading cause of blindness. Glaucoma, corneal opacities, keratomalacia, ophthalmia neonatorum and epidemic dropsy glaucoma have a high incidence. Trachoma is not a serious problem in most areas of Bengal, but smallpox and venereal disease cause many eye troubles.

The mobile units carried on an active education program in the rural districts, and made a census of the blind in 2,000 villages with a combined population of about 20,000,000. A total of 2,729 blind persons were found. Two of the mobile units were taken over by East Pakistan in 1948 when part of Bengal was included in the new state. An increase in services to the villages is now planned.

The Calcutta Eye Examination and Lecture Unit was active from 1939 until the mass killings of 1946 which disrupted the city's activities. Of 17,000 school children examined during this period nearly 5,000 showed visual defects.

ITALY

Pope Approves Corneal Grafts. Pope Pius XII, addressing an international meeting of ophthalmologists and surgeons in Rome during May 1956, gave his official sanction to the transplant of corneal tissue. "You assure us," he told the specialists, "that the transplantation of corneas represents for many patients the hope of recovery. Well, use it to help the patients as far as it is possible and permissible!"

The Pope added a timely warning to the public that only certain eye troubles could be helped by corneal grafts.

In his praise of those who bequeath

their eyes to eye banks the Pontiff recalled the example of Don Carlo Gnocchi, the priest who died in February 1956 after willing his eyes to blind children. A former army chaplain, Father Gnocchi devoted the postwar years to work for children. The legacy of his eyes brought sight to a girl given keratoplasty by Dr. Cesare Galeazzi, but the other transplant failed to help a boy blinded by a spray of quicklime.

The dramatic nature of Don Carlo's deathbed bequest aroused such popular interest that a thousand persons pledged their eyes to help others, and the first eye bank in Italy was inaugurated and named in honor of the priest. A bill making eye banks legal is still to be passed by Parliament, but prompt action is expected to follow Pope Pius's endorsement.

Dr. Bietti Honored. Dr. Giambattista Bietti has been appointed director of the University Ophthalmologic Clinic at Rome to succeed the late Professor Vittoriano Cavara, once his teacher. Recognized as an authority on trachoma, Dr. Bietti was recently elected president of the International Organization Against Trachoma, which is fighting this disease on a world scale. Under his leadership the work in ophthalmology at the University of Parma has attracted the attention of his American and European colleagues, who are gratified at this latest recognition of a singularly brilliant and public spirited scientist and teacher.

Colored Roads. The Abruzzi Asphalt Society of Rome has come up with the idea that highways of the future can have various tints to reduce glare and the need for road signs. Northbound travelers might thus take the green road to Milan or the yellow road to Venice. The inspiration came to the chemists experimenting for the Society with colored asphalt left from the extraction of aluminum from bauxite rock. The material is suitable for road surfacing and could come in various shades of red, green, white, brown or yellow.

JORDAN

Trachoma Research. The first research laboratory in a trachomatous region is under construction in Jordan by the Order of the Hospital of St. John of Jerusalem. Sir Stewart Duke-Elder, hospitaller of the Order, has announced that a research team consisting of a clinician, a virologist and a bacteriologist will study the trachoma virus, which has not so far been effectively isolated. Most of the 400,000 refugees in Jordan have trachoma, and a new 75-bed hospital will be built in connection with the laboratory to provide a base for treatment.

Since the seventh century the Order of St. John has maintained a hospital in Jerusalem, and the existing one, which had 183,000 out-patients last year, is too small to meet demands. The trachoma investigation will be under the direction of the Medical Research Council of the British Medical Association, and the research team will have help from the Institute of Ophthalmology in London and the virus laboratories of the Lister Institute. The Order has made a contribution of 290,000 pounds sterling, and other funds have been presented by the British and Middle East governments, the World Health Organization, and other sources, so that financing is assured for seven years of research into the eye disease which

affects perhaps a fourth of the world's population.

SCOTLAND

Integration of Handicapped. The integration of handicapped children into the regular schools was recommended in a recent circular of the Scottish Education Department. This is a departure from the policy in Great Britain of isolating children with visual and other handicaps in special schools.

J. A. Smith, an authority on special education, welcomed the move in a statement quoted by the *Special Schools Journal* (London) of March 1956. Citing the policy of integration followed in the United States and a few other countries, he said, "There is evidence to show that in countries like England and Holland which formerly favored segregation, opinion and practice are now hardening against it."

The over-segregation of handicapped children, he went on, tends to develop "group" minds and vested interests. However, he warned that the new system could not be satisfactory until the special class was integrated into the life of the school to which it was attached, and until the leaven of special educational treatment had spread into the regular school. He felt that a manual was needed for the guidance of administrators and teachers in dealing with specific problems, and in developing proper attitudes to handicaps in the general public.

UNION OF SOUTH AFRICA

Witch Doctor Finds New Magic. A Bantu woman who had built up a great following as a witch doctor in the Transvaal was cured of her blindness in two senses during a field tour of a mobile ophthalmic unit late in 1955. Suffering from mature cataracts in both eyes, the sightless witch was escorted by a crowd of anxious disciples to the mobile unit sent out by the Bureau for the Prevention of Blindness.

For a week she resisted surgery, convinced that if a European doctor touched her she would instantly fall dead. Finally she yielded, and both lenses were extracted—fortunately with entire success. After four days in the rough tent hospital she emerged a transformed person. Not only could she see again, but her attitude had changed from one of hostility into friendly respect for the magic of modern medicine.

The ophthalmic tour among the Bantus, in the Zoekmekaar area, was the fourteenth undertaken by the Bureau, and one of its most rewarding. The natives are wretchedly poor, riddled with trachoma, and burdened with unhygienic habits such as smearing the heads of young girls with fat and red clay, a practice leading to entropion, corneal scarring and trachoma. Despite these backward conditions, the Bantu were pathetically eager to be treated. At one center where six persons had had their sight restored by surgery, 600 natives rushed to the unit and almost mobbed it in their anxiety to be cured.

NEW PUBLICATIONS

Two reprints now available from NSPB at 1790 Broadway, New York 19, are:

"Make Sure Your Child Has Two Good Eyes." Henry F. Allen, M.D. From *Today's Health*, September 1956. 10 cents.

"Classrooms for Partially Seeing Children." Franklin M. Foote, M.D. From *Exceptional Children*, May 1956. 5 cents.

CURRENT ARTICLES

Arteriosclerotic Macular Degeneration; Diabetic Retinopathies: Effect of Lipotropic Substances (Lipotriad) in Treatment. H. L. Hilgartner. *Texas State Journal of Medicine*, Vol. 51, p. 733. November 1955.

The lipotropic substances choline, inositol and methionine (Lipotriad) had a favorable effect on older persons with blurred vision due to arteriosclerosis. After treatment for at least three months both vision and general health were improved. There is a definite percentage of patients who do not tolerate these drugs.

In a small series of diabetic retinopathies the senile patients, but not the younger ones, were apparently helped by Lipotriad in the absorption of retinal hemorrhages and exudates and in a feeling of well-being.

Present-day Concept of Diabetic Retinopathy. I. Givner. *Diabetes*, Vol. 4, p. 284. July–August 1955.

The characteristic vascular lesion of this disease is masses of minute and often hyalinized saccular aneurysms in the retinal capillaries. Diabetes in itself is associated with increasing capillary fragility, which we are not yet able to define pathologically. It is accepted today that the picture of diabetic retinopathy is not dependent on hypertension, arteriosclerosis or atherosclerosis. The retinal lesions of the diabetic are closely related to the renal lesions described by Kimmelsteil and Wilson; both may be manifestations of the same vascular disease.

It has been suggested that both renal and retinal changes may result from an increased production of adrenocortical hormones. Other studies have shown an interrelationship between these hormones and vitamin B_{12} deficiency in diabetes. Possibly they act together with diabetes in producing the renal and retinal lesions by means of their effect on some other deficiency or metabolic disorder.

The diabetic shows an increase in plasma lipids. Lipemia can be produced experimentally in rabbits by alloxan or cortisone, but it is not readily elicited in rats, nor do rats develop renal or retinal aneurysms under the experimental conditions that produce these lesions in rabbits. It has been found that rats possess a high level of properdin, a newly isolated blood serum, which may play a part in their immunity to infections.

Ocular Observations on the Diabetic Patient. I. Givner. *American Journal of Ophthalmology*, Vol. 41, p. 285. February 1956.

A total of 286 children at a camp for young diabetics were examined for ocular pathology, though they had no eye symptoms. Six children showed retinopathy in the form of pinpoint hemorrhages or microaneurysmal dilations; two of these had albumin in the urine. Two others had cataractous changes, and one of them showed albumin. Pathologic fundi have been considered exceptional in diabetics under 35.

Dolger has stated that half his patients with retinal hemorrhage of diabetic origin have albumin in the urine, caused by changes in the kidney comparable to those observed in the retina. But usually we do not know why the

vascular system is affected, causing retinal and vitreous hemorrhages. We should note, however, that retinal as well as cerebral hemorrhages can occur with hypoglycemia. A blood sugar of 140 mg. is less dangerous to the eyes than one of 60 mg.

The ophthalmologist is in a unique position to detect early cases of diabetes. In a person over 21 years of age if myopia increases or hyperopia decreases with no apparent cause, a blood sugar should be taken before glasses are prescribed.

True diabetic cataracts develop with great rapidity. A case is cited of a young woman who had bilateral mature cataracts, though she had shown disturbed vision only five months before.

Long Range Complications of Poorly Controlled Diabetes. P. J. Murison. *Journal of the Louisiana State Medical Society*, Vol. 108, p. 137. April 1956.

Strict control of diabetes is probably the most important single defense against retinopathy and other degenerative changes such as premature arteriosclerosis, neuritis and glomerular renal lesions which blind, cripple and kill an appallingly high percentage of diabetic patients. These changes should be looked for by the physician, since in the early stages there is a real chance that meticulous control can arrest or even reverse the process of degeneration.

Capillary fragility can probably be detected earliest by fundoscopy, which reveals the small red dots which are micro-aneurysms. Other early signs, such as diabetic neuritis in the legs and feet, should be the signal for putting the patient on a strict regimen.

While there is overwhelming evidence of the hereditary nature of diabetes mellitus this does not prove that vascular complications are an inevitable accompaniment. It seems more likely that they are not carried by the same genes which produce insulin deficiency. Moreover, the important factors in causing vascular damage are biochemical and biophysical abnormalities resulting from poor control of the disturbed glucose and lipid metabolism of diabetes.

Clinical studies have shown that the incidence of these complications diminishes with good control. In a series of 247 cases of diabetes of from 10 to 34 years' standing, 60 per cent of those under poor or only fair control showed retinitis; 17 per cent under good control had retinopathy, while the seven patients under excellent control showed one mild case of retinitis.

Diabetic Cataracts: A Review of Experimental Studies. J. W. Patterson. *Diabetes*, Vol. 5, p. 93. March-April 1956.

Clues to the mechanism producing diabetic cataracts were found in studies with rats. The hypothesis that hyperglycemia plays a direct role in the formation of cataracts has been supported by the fact that a high fat diet, fasting and the administration of phlorizin have been beneficial in preventing cataracts, and these regimes lower the blood sugar.

If the high blood sugar level acts directly on the lens to produce cataracts, then the amount of sugar reaching the eye by way of the blood stream should be important. However, experiments with diabetic rats show that the occurrence of cataracts is unrelated to the blood supply. Some factor other

than hyperglycemia is evidently responsible. A lack of insulin could be such a factor.

A mechanism is suggested: in the absence of insulin, the uptake of glucose by the lens is impaired, and this weakens the lens below the critical point necessary for maintaining transparency. Under incubation the normal rat lens will take up glucose at a constant rate for several hours, but lenses obtained from rats with diabetes of a week's duration take up glucose to less than half the normal value.

When diabetic rats are given a diet containing substances which do not require insulin for utilization the lens does not degenerate. This diet is 50 per cent fructose, 25 per cent casein and 25 per cent fat fortified with vitamins and minerals. Most of the fructose is rapidly converted to glucose, and hyperglycemia is maintained for an indefinite period. The fact that this diet prevents cataract formation rules out hyperglycemia as a direct agent. This fructose and high fat diet not only compensates for the inability of the lens to absorb glucose, but has a beneficial effect on growth curves of rats.

The author received grants from the National Society for the Prevention of Blindness in 1951 and 1952 in support of this research.

Studies on Radiation Cataract. I. Determination of the Threshold Dose Level of Radiation Cataract. F. Kandori. *American Journal of Ophthalmology*, Vol. 41, p. 627. April 1956.

To determine the threshold level at which radiation causes cataract, rabbits aged three to four months were given varying dosages of x-ray in one eye, the other serving as control. Some were given monthly slit-lamp examinations over a period up to 349 days, but it was found that if cataract were to develop, this could be determined histologically by 160 days after exposure. One series of experiments was repeated with rats of the same age, with much the same findings. The authors believe that there is no marked difference between animal species in critical levels.

The results showed that a single large dose of radiation was more harmful than the same level of roentgens given fractionally. The cataractogenic threshold for a single exposure was 900 roentgens, while the epilation level was 1,000. Dosages of 1,300 r to 1,500 r produced cataracts in 40 to 60 days. An exposure of 150 r given twice a week for a total of ten times did not affect the lens, while the same total of 1,500 r given in five weekly doses of 300 r caused lens opacities. The lens tolerated daily doses of from 15 r to 60 r. It is concluded that workers in x-ray laboratories and atomic energy installations should have a maximum daily exposure of no more than 50 r. Younger tissue is more sensitive to radiation than older, and the lens has almost the same recuperative power to x-ray radiation as other tissues.

Cataracts in Vitamin E Deficiency. An Experimental Study in the Turkey Embryo. T. M. Ferguson, R. H. Rigdon and J. R. Couch. *A.M.A. Archives of Ophthalmology*, Vol. 55, p. 346. March 1956.

Turkey embryos from vitamin E-deficient hens showed extensive liquefaction of the lens protein and focal areas of degeneration in the cornea. One or both eyes from 109 embryos aged from five to 28 days of incubation

were given gross and histological study. Half of them, from hens fed a vitamin E supplement, were used as controls.

When 19 days old the vitamin E-deficient embryos showed a keratoconus-like change, which increased as the embryo aged. Opacities in lens or cornea were found in one or both eyes of 21 of 54 E-deficient embryos, but occurred in only two of the 55 controls. The most conspicuous change was the liquefaction of all or nearly all the lens protein after formation. First, small cyst-like areas, considered as Morgagni bodies, formed, some of them containing calcium. Then degeneration of the lens protein continued, without affecting the capsule, but finally accompanied by degeneration and proliferation of the epithelial cells of the anterior portion of the lens.

A previous study by two of the authors showed that vitamin E in the diet of hen turkeys prevented cataract in the embryo, and that the incidence of cataract correlated with the tocopherol content of the egg. In the present study chicks hatched from vitamin E-deficient embryos occasionally had bilateral cataracts, but otherwise appeared to be normal. The mechanism for these cataracts was not determined.

Experimental Approach to the Pathogenesis of Retrolental Fibroplasia. IV. The Effects of Gradual and of Rapid Transfer from Concentrated Oxygen to Normal Air on the Oxygen-Induced Changes in the Eyes of Young Mice. L. J. Gyllensten and B. E. Hellström. *American Journal of Ophthalmology*, Vol. 41, p. 619. April 1956.

Various reports on retrolental fibroplasia in premature babies have argued that gradual weaning from oxygen therapy has prevented the development of the disease. The authors present the first animal study of the effect of weaning on oxygen-induced changes in the eye. As in other investigations in their series, the authors advise caution in drawing conclusions about human RLF from the similar disease in the mouse eye. The early stages of both show abnormal vascularization of the nerve-fiber layer, but the final, cicatricial stages of RLF have never been reproduced experimentally.

Six groups of mice were used; all received a 98 to 100 per cent concentration of oxygen for five days. The control group of 53 mice was then removed rapidly to air, and the five experimental groups were put through various weaning regimes. The gradual reduction of oxygen had no effect on the frequency and intensity of eye changes. It merely retarded for a time the normal and pathologic vascularization of the retina, but after a stay in air the "weaned" mice exhibited the same abnormalities as the controls.

Experimental Approach to the Pathogenesis of Retrolental Fibroplasia. VII. Effect of Oxygen Exposure on the Electroretinogram in Kittens. B. E. Hellström. *A.M.A. Archives of Ophthalmology*, Vol. 55, p. 211. February 1956.

A basic question in the pathogenesis of retrolental fibroplasia is whether signs of disturbed retinal function can be demonstrated during continuous oxygen exposure. The electroretinogram (ERG), the retinal response to illumination, gives the best objective information about the general state of retinal function. Kittens were used for

the experiment, since during their first three weeks of life their retinal vascularization closely resembles that of premature infants. Also, the ERG of normal kittens has recently been studied.

Both eyes of 14 animals, aged 12 to 17 days, were examined after a short exposure to 85 to 95 per cent oxygen (12 to 13 hours). No significant changes in the ERG were noted. Another group of 18 kittens was kept in 70 per cent oxygen from shortly after birth for 21 to 28 days. At the end of the stay in oxygen the ERG demonstrated pathological responses in all but 9 eyes. These responses were of the negative type. In 6 eyes there was complete negativity; the b-wave was extinguished and the a-wave was negative. In 5 eyes there was a dominating a-wave and in 16 an abnormally deep a-wave. Older kittens similarly exposed did not have an abnormal ERG.

The pathological response of the test group resembles that found in human eyes with acute circulatory disturbances of the retina such as thrombosis of the central veins or embolism of the central arteries. In cats, monkeys and rabbits a decline of the b-wave has been demonstrated following anoxia or ischemia, and cytotoxic agents have eliminated the b-wave in experiments with rabbits and cats.

Whether caused by ischemia following vaso-obliteration, or by a direct cytotoxic effect of oxygen, it is clear that retinal damage occurs while the animal is still in oxygen. There was no evidence of an aggravation of the abnormality of the ERG on transfer to air; in fact, most abnormal ERG's tended to normalize in a few weeks.

If identity is accepted between the oxygen-induced disease in kittens and human RLF, it would appear that the vaso-proliferating stage, usually described as the first clinical phase of the disease, actually is a secondary phase and that a metabolic injury had already occurred when this phase was starting.

The Developmental Evaluation of the Blind Premature Infant. A. H. Parmelee. *A.M.A. American Journal of Diseases of Children*, Vol. 90, p. 135. August 1955.

The purpose of this study was to determine whether premature infants blinded by retrolental fibroplasia and premature infants with vision could be evaluated by the Gesell developmental norms. Ten infants of each group were tested and compared with 80 full-term babies with normal vision. Proper correction was made for the number of weeks of prematurity for the children born before term. The mean developmental quotient of the 80 full-term babies was 107, that of the normal premature infants was 109, and that of the blind premature infants 102.5.

The records of 28 additional premature blind babies were obtained from parents who had noted in writing the age at which eight stages of development were reached. In all but two cases, omitted as grossly retarded, these babies followed the normal development pattern closely. Smiling, putting objects in the mouth, pulling to a stand and walking holding on were accomplished at the normal age when allowance was made for weeks of prematurity. Sitting without support was somewhat delayed as a rule, and standing alone and walking alone were definitely delayed, evidently because balance depends on vision.

While this study suggests that premature children, blind or not, develop by normal standards, it was made on a relatively selected group. Children known to be grossly retarded were omitted, and the parents of all the blind children had been given suggestions from the educational consultants of the State Services for the Preschool Blind in the southern California area which had helped them compensate for the child's handicap by giving him non-visual sensory experiences.

Retinitis Pigmentosa: Pathological Findings in Two Cases. D. R. Lucas. *British Journal of Ophthalmology*, Vol. 40, p. 14. January 1956.

Two cases of retinitis pigmentosa were examined histologically. The 60-year-old woman showed a dominant mode of inheritance, the first case of this genetic type to be studied pathologically. Histological examination of her eyes showed typical changes in the retina, and no obvious optic atrophy or abnormality of the choroid.

The 63-year-old man, with a recessive type of inheritance, showed a degree of choroidal sclerosis which seems to correspond to only two other cases in the literature, and suggests the possibility that there are two types of the disease. His choroid was enormously thickened at the posterior pole for about 2 mm. on either side of the macula, and the larger arteries showed mural thickening and periadventitial deposition of fibrous tissue.

In both the cases described here the clinical findings were entirely characteristic of retinitis pigmentosa, and no other ocular complications were present. Both patients were dying with carcinoma when examined with the ophthalmoscope.

Analysis of the literature yielded 10 other cases of indubitable retinitis pigmentosa examined pathologically without other ocular complications. Including the present cases with these, six show marked optic atrophy, and nine of the 12 show no positively established lesion of the choroid.

Unilateral Retinitis Pigmentosa. C. A. Turtz. *American Journal of Ophthalmology*, Vol. 41, p. 308. February 1956.

This disease is usually hereditary, as a recessive trait, and rarely as dominant or sex-linked. When it appears as a recessive mode, intermarriage should be avoided within the same pedigree. The cause is unknown; no cure has been found; and blindness by middle age is the rule. Serious symptoms usually appear between the age of six and 12 years, and night blindness may be present for several years before pigment changes are observed in the retina.

The clinical course is slow and may be interrupted by remissions in which the visual acuity and fields show marked improvement. These fluctuations have inspired a number of optimistic reports on the disease by ophthalmologists hoping they have discovered a cure.

The disease is almost without exception bilateral, with both eyes equally affected. A case is described of a rare unilateral retinitis pigmentosa in a woman of 28 whose right eye showed the characteristic pigment deposits and other findings of the disease, while the left eye was completely unaffected. She was seen twice again during a five-year period, and the right eye was practically unchanged except for a slight contraction of the

visual field. The left eye continued to show no pigmentary degeneration.

The Cytologic Diagnosis of Trachoma. P. Thygeson. *Revue Internationale du Trachome*, 32nd Year, p. 421. Winter 1955.

The early diagnosis of trachoma before the development of pannus and gross cicatrization is often difficult. In countries with much trachoma, cases of non-trachomatous follicular disease may be mistaken for trachoma, and in countries with little trachoma early or atypical cases may not be recognized. Especially in the latter situation cytologic diagnosis has often proved helpful and reliable, giving positive findings when the clinical picture was doubtful.

In the order of their importance, the cytologic findings in scrapings are: inclusions, Leber cells in numbers, germinal center follicle cells, and multinucleated epithelial cells. Expressed follicular material gives further indications. The cytologic findings are described, and the Giemsa stain is recommended. Cell study has also proved valuable in determining of cure in a small series of cases, and deserves further exploration.

Visual Aids for the Partially Sighted. A. Linksz. *American Journal of Ophthalmology*, Vol. 41, p. 30. January 1956.

Visual aids for the partially seeing are not in principle different from those for the normal person. In ophthalmic optics the term magnification means spreading the retinal image upon a greater number of cones. A visual aid which doubles the angular size of the image is said to have a magnification of X2.

For distance, telescopic visual aids are small, compact opera glasses (miniature Galilean telescopes). They are usually limited to X2.0 or X2.2, since powerful lenses of wide diameter are too heavy, and the closeness of magnified objects is disturbing. Patients with a refractive error must have their correction worked into the system. Many persons with a vision as low as 10/200 find telescopic lenses of little use except for movies or television, and if their visual field is fairly intact they can move about safely.

For near, there are three types of aids: (1) hand magnifiers or loupes, (2) telescopic lenses with reading caps, (3) strong reading glasses. The loupe can be used with or without presbyopic reading correction. When strong loupes are used they are more satisfactory if there is some device to hold the print at the proper distance.

The telescopic lens for distance with a reading addition, a cap slipped over the lens, enables a patient with 20/160 optimal visual acuity to read 12-point print (assuming a telescopic power of X2 and a reading addition of +2.75 diopters). For finer print, a loupe may be used along with the glasses.

The microscopic lens is simply a strong presbyopic reading addition which runs over +4 diopters. The patient with 20/200 vision will need a lens of +12 diopters and must hold the print 10 cm. from his eyes if it is 9 or 10 point. To read newspapers in 7 point he must hold the paper at a reading distance of 8 cm. If he cannot adjust to this, he should use a loupe.

The partially seeing need not be corrected to 20/20 vision for distance and near. Reading lenses should be planned in terms of the size of print the patient wants, or needs.

Dark Adaptation and the Near Ultraviolet. G. Moeller, G. Fooks, H. G. Sperling, D. Farnsworth and H. Wendt. U. S. Naval Medical Research Laboratory, Vol. 14, Report No. 268. October 1955.

Recent developments in lighting practices, with the substitution of fluorescent fixtures for incandescent lamps, have made it important to study the visual effects of the near ultraviolet. Several authorities have claimed that this radiation retards dark adaptation, acting directly upon the photosensitive material of the rods.

Two studies were made to determine the effect of exposure to near ultraviolet light upon dark adaptation. In the first, a Hecht-Shlaer adaptometer was modified so that radiation from a mercury-arc lamp or an incandescent lamp (control) could be added to the light adapting field of that apparatus. This was the first study in which the experimental and control light adaptation fields were exactly alike photometrically and colorimetrically for each observer. The techniques used were sensitive enough to reveal any appreciable influence of the near ultraviolet. No influence on darkness adaptation was found; the thresholds at 25 to 30 minutes after exposure to the ultraviolet and control fields showed no appreciable difference.

In the second study the ultraviolet and control fields differed from each other in color and spectral composition, and were much brighter than those used in the first study. Again there was no reliable evidence that the near ultraviolet affects dark adaptation deleteriously. Since the conditions of these two studies were stringent, it is concluded that the positive findings reported by others were influenced by a very complex set of factors in the environment and in the subject's physiological condition.

Possibilities and Limitations of Contact Lenses in Clinical Practice. G. Calamandrei. *Aggiornamenti di Terapia Oftalmologica*, Vol. 7, p. 3. July–August 1955.

Analysis of the American and European literature on contact lenses and critical appraisal of the already large fund of clinical experience with them suggests that this therapeutic method has wide and varied possibilities. Of recent years the perfecting of the techniques of adjusting the lenses and a more accurate study of the mechanical problems has led to a better toleration by the patient and increased confidence on the part of the physician.

Today the basic indications for contact lenses are of three sorts: optical (high myopia, keratoconus, monolateral aphakia); therapeutic (in keratoplasty, various affections of the cornea); and professional (affording good visual acuity to sportsmen, actors, etc.). They have also proved useful in diagnosis, facilitating gonioscopy and photography of the fundus; special lenses containing lead protect the eyes against x-rays. They can be used as electrodes for iontophoresis.

The Photoreceptor Process in Vision. G. Wald. *American Journal of Ophthalmology*, Vol. 40, p. 18. November 1956.

The present status of the chemistry of visual excitation in vertebrates is reviewed. There are four known visual pigments: rhodopsin and porphyrop-

sin in the rods, and iodopsin and cyanopsin in the cones. The author and his group have recently synthesized cyanopsin in the Biological Laboratories of Harvard University; it is probably the pigment of cone vision in certain freshwater fish and tortoises.

All four pigments are proteins bearing carotenoid chromophores which make them sensitive to light. All are made by incubating in the dark an opsin with the proper isomer of retinine. The cycle of bleaching and resynthesizing is followed by each pigment. The spectral sensitivities of rod and cone vision derive directly from the absorption spectra of the visual pigments. The theory is presented that the logarithm of the visual sensitivity is proportional to the concentration of visual pigment in the human rods and cones.

In the human retina dark adaptation is completed by the cones in about five minutes, and in the rods in about 45. Light and dark adaptation have their primary source in the bleaching and resynthesis of the visual pigments. In vitamin-A deficiency cone vision deteriorates along with rod vision, and both recover on administration of vitamin A. This relationship may be explained by the fact that rhodopsin and iodopsin are synthesized from the identical forms of vitamin A. Though iodopsin has not been demonstrated in human cones, and if present is presumably accompanied by at least two other cone pigments, these pigments are probably synthesized from the same vitamin A.

The opsins have been neglected in the etiology of dietary night blindness, and this disease and its cure have been thought of in terms of vitamin A. Some night-blind subjects are completely cured within a few hours by the administration of vitamin A, while others do not respond to high dosages for months. It seems that we have not distinguished an acute from a chronic syndrome in vitamin-A deficiency, and that in the chronic condition a failure of opsin rather than of vitamin A may be the predominant cause of night blindness.

A Second Look at One-Eyed Applicants and Employees. C. Leggo. *Industrial Medicine and Surgery*, Vol. 24, p. 473. November 1955.

As an industrial physician the author's experience with one-eyed employees is that they do not consider themselves handicapped, and should not be so regarded if they have good vision in one eye. Their performance record is probably above average. The normal binocular individual who temporarily has the vision in one eye obscured is greatly handicapped, but most persons who have permanently lost the sight of one eye have compensated for it perfectly. Many are competent athletes, many develop depth perception and are expert automobile drivers.

Tragic, however, are the results of an accident to the individual's one good eye; and physicians who examine and advise one-eyed persons have a special duty to counsel them in methods for protecting themselves against blindness.

The one-eyed person should avoid an occupation with more than ordinary risk to the eyes. If already skilled in a risky trade, he should be drilled in methods of protecting his sight. He should wear case-hardened lenses through all his waking hours.

Compression of the Aqueous Outlets. H. Lytton. *British Journal of Ophthalmology*. Vol. 40, p. 104. February 1956.

An increase in the intraocular pressure was observed to inhibit the production of aqueous when a device was used to compress the aqueous outlets at the limbus. Circular pressure was applied for 90 seconds with a metal cone attached to a standard tonometer or else by a conical ring used with a dynamometer. The limbal pressure was applied to 32 normal eyes and an equal number of operated and unoperated eyes with cataract or chronic or congestive glaucoma.

Before and after the compression the tension was tested by the Weiss weightless tonometer, and instead of the expected rise after compression the tension was the same or slightly lower than before. If the production of aqueous is inhibited by the increased pressure, then tonometry cannot claim to be an exact method for measuring aqueous outflow. It seems probable that no mathematical relation exists between aqueous production and intraocular pressure, but that an automatic regulation is involved. The production decreases when the pressure rises and vice versa, thus maintaining an equilibrium between production and outflow.

Surgical Treatment of Infantile Glaucoma. E. Velter. Paper presented at Fifth Pan-American Congress of Ophthalmology, Santiago de Chile, January 1956. *Archivos Chilenos de Oftalmologia*, Vol. 12, p. 128. August–December 1955.

The surgical treatment of infantile glaucoma is a difficult and often distressing problem to the ophthalmologist. While congenital malformation of the iridocorneal angle is the common pathogenesis, certain cases have an inflammatory origin which is proved by local residual signs such as pigmentary changes, atrophic lesions of the iris, abnormal vascularization, and fundus and lens changes.

Surgical indications depend above all on the clinical picture: high ocular tension, progressive deepening of the anterior chamber and increased volume of the eyeball, and sometimes inflammatory complications which always make the prognosis less favorable.

Although medical treatment is generally ineffective, repeated instillations of miotics such as prostigmine or Diamox may be used with benefit to reduce ocular tension before surgery and may even facilitate the operation. There is complete agreement on the necessity of operating in the first months of an infant's life, before irreversible lesions develop.

There is no such unanimity about the choice of surgical procedure. Unlike glaucoma in adults, the infantile form has factors revealed by gonioscopy: a congenital malformation which must be modified or eliminated by goniotomy. Various surgical techniques are evaluated; cyclodiathermy is considered too dangerous for young infants, and cyclodialysis too difficult because of the tissue fragility in these patients. Iridencleisis is easily performed, but in the author's opinion involves complications, especially the risk of postoperative infection. The Paris Society of Ophthalmology reports an incidence of infection in five per cent of such operations.

The fact that eye surgeons hesitate to produce an impaction of the iris led Felix Lagrange to the principles on

which the technique of sclerectoiridectomy is based. While this method has stood up well, the author believes it too difficult to use with young babies, and prefers Elliot's technique of sclerocorneal trephining.

As for goniotomy, it seems an operation logically based on gonioscopic findings. Barkan's operation, based on goniotomy, has had fine results, and may prove to be the method of choice for infantile glaucoma.

Diamox in Glaucoma. J. S. Friedenwald. *Excerpta Medica*, Vol. 10, p. 87. March 1956.

Diamox is by no means a substitute for all more conventional forms of therapy in glaucoma, but is a useful addition. Some cases which have resisted other forms of treatment have been held under control without visual loss under Diamox therapy for as long as one year.

In the most severe forms of glaucoma with high resistance to outflow the pressure drop comes on slowly, in 12–18 hours, and though the drop may be large it may not suffice to normalize the intraocular pressure. The utility of Diamox for short term control of glaucoma has been attested by many authors, and it has had dramatic success in some forms of secondary glaucoma.

For continued control the drug usually needs to be given orally about every six hours in doses of 250 mg., but smaller doses given more frequently are sometimes more effective. Maintained at these dosage levels and frequencies the efficacy of the drug seems to continue unimpaired, but patients receiving the drug every 12 or 24 hours often become refractory. More frequent doses, along with ammonium chloride or sodium bicarbonate (2 g. four times daily) can reestablish responsiveness to Diamox.

Occupational and Avocational Trends and their Implications in Practice. R. A. Sherman. *American Journal of Optometry and Archives of American Academy of Optometry*, Vol. 32, p. 583. November 1955.

Visual factors in the do-it-yourself drive involve the need for improved occupational vision services. A plywood company estimated that two-thirds of the Americans whose homes are worth from $10,000 to $25,000 engage in home building and repairs, and *Time* magazine reported that 11,000,000 amateur carpenters were at work in 1954 on home projects. At the same period, an insurance company survey showed, 638,000 persons suffered disabling injuries doing home repair work.

These accidents are comparable to those in industrial plants before safety departments began to function. Many mishaps involved the eyes, and many more were due to faulty vision. Analysis shows that accidents frequently happen when the task is above eye level, when the person is over 40 years old and is wearing reading segments placed low in his spectacles.

There is need for occupational spectacles with safety features and bifocal segments to make vision adequate for do-it-yourself tasks.

Visual and Reading Improvement in Industry. H. N. Walton. *American Journal of Optometry and Archives of American Academy of Optometry*, Vol. 32, p. 563. November 1955.

An employee training program in visual, perceptual and reading skills was developed for the American In-

stitute of Banking and tested in a pilot group of 56 bank employees from various departments. In addition to standard materials for vision training special slides were prepared from banking forms and literature.

The method used was to increase the number of digits the eye could read in the 1/100 of a second exposure given by a tachistoscope. In reading the eye does not sweep along a line of print, but moves in a series of jerks and pauses. During the pause the eye takes in a certain span of letters. The average span for a college student reading nontechnical material is 1.25 words per fixation. On a 10-word line he must make and break fusion eight times. Training enlarges the span of recognition by taking advantage of peripheral vision.

At the start of training all the employees could grasp four digits and two-word phrases in 1/100 of a second. By the end of the course the whole group could read six digits and four-word sentences in that time, and 59 per cent could reproduce accurately seven digits. The average reading rate before training was 232 words per minute, with 78 per cent comprehension. The rate improved to an average of 417 words and 82 per cent comprehension. These enhanced skills were reflected in increased speed and efficiency in banking routines.

Immediate Results of Treating Sun-Blindness with Carbachol Injections. S. Gebertt. *British Medical Journal*, Jan. 14, 1956, p. 95.

Fifty-five persons with severe eye damage from looking at the solar eclipse of June 30, 1954 were treated at the Royal Infirmary in Aberdeen, Scotland. In many cases the macular injuries included a bright diamond-like reflex at the macula surrounded by an area of exudation and hyperemia. Visual acuity was often 20/100 or worse.

A new treatment was tried, the retrobulbar injection of 0.25 mg. of carbachol. In 39 cases a trial injection in one eye brought a visual improvement within half an hour, and this group was treated daily for two or three days. Seven of them recovered, 13 showed an improvement in visual acuity of more than two Snellen lines and the scotoma diminished by two-thirds. Eight others improved by one or two Snellen lines and the scotoma was reduced by half. In 11 cases visual acuity deteriorated after a temporary improvement. These cases added to the 16 which did not respond to the trial treatment indicate that carbachol was helpful in 28 cases, and negative in 27. The drug had no serious side effects.

A New Type of APC Virus from Follicular Conjunctivitis. E. Jawetz, L. Hanna, S. J. Kimura and P. Thygeson. *American Journal of Ophthalmology*, Vol. 41, p. 231. February 1956.

The adenoidal-pharyngeal-conjunctival (APC) group of viruses include various serologic types, eight of which have been described. APC virus Type 6 has now been isolated from two patients with follicular conjunctivitis and mild systemic or respiratory symptoms, and for the first time has been shown to produce human illness.

The virus obtained from Case I was used in a serologic survey of persons aged nine to 44 years living in California. A third of the sera (12 of 36) had neutralizing antibodies to APC

virus Type 6 in a dilution of 1:10 or greater. Most of these sera were from persons over 25 years, and most positive reactions were in that age group. The virus was also neutralized by one lot of commercial gamma globulin in a dilution of 1:80.

Similar results were reported from the Washington, D. C. area by Drs. W. P. Rowe and R. J. Huebner, who described Case II. The incidence of neutralizing antibodies against the virus was found to be about 30 per cent. Thus there is evidence that at least in these separate areas a third of the population may acquire infection with APC virus Type 6 before the age of 45 years. It is not known whether the disease is asymptomatic in most cases or mild and transient, as in the cases described. However, it appears possible that the conjunctiva may often serve as portal of entry for APC viruses which later attack the respiratory tract.

Emergencies in General Practice: Ocular Emergencies. H. B. Stallard. *British Medical Journal*, Dec. 10, 1955, p. 1441.

This paper suggests what the general practitioner can do in certain ocular emergencies before the patient can be sent to a hospital and put in the care of an eye surgeon. These conditions of sudden, unexpected onset require immediate treatment if catastrophe is to be avoided in the affected eye and often in its fellow. An acute attack of glaucoma may involve the second eye, and a penetrating injury near the ciliary body may lead to sympathetic ophthalmitis and total blindness.

In cases of vascular occlusion, the practitioner is warned that when the central retinal artery is occluded for an hour or more vision will be lost. Vasospasm of this artery must be immediately released by dilating it and lowering the intraocular pressure. If the central retinal vein is obstructed, thrombosis may be prevented by anticoagulants.

In retinal detachment Stallard suggests that the physician instill atropine in the affected eye, occlude both eyes, and send the patient to the hospital in a recumbent position if the detachment started in the upper half of the fundus, and sitting if it started in the lower half.

Traumatic Epithelial Cyst of the Iris. F. Scullica. *Rassegna Italiana d'Ottalmologia*, Vol. 24, p. 251. July 1955.

Twenty-two years after a penetrating wound of the left cornea by scissors the patient was seen with a cyst of the iris. This arose at the lower limbus quadrant. There was also a pigmented patch on the adjacent sclera. Focal illumination showed a translucent, velvety appearing surface of the cyst with pigment granules. The cyst was composed of three lobes. There was no inflammation of the eye, the lens was clear and the fundus appeared normal. Surgery was advised but refused.

Five months later the eye showed pericorneal congestion and some enlargement of the cyst. These changes increased and led to eventual operation for removal of the cyst. Histologically this latter consisted of three layers, an external, a basal and an epithelial layer. Cataract formed and was later extracted. The literature on traumatic iris cysts is reviewed.

EUGENE M. BLAKE, M.D.

BOOKS AND PAMPHLETS

Les Enfants Amblyopes. Dr. Simone Delthil. Société D'Ophtalmologie de Paris, 1955. 144 p.

The ocular and educational problems of the partially seeing child are discussed by a distinguished ophthalmologist who is familiar with conditions in Europe and the United States, and who has been active in trying to improve the school program in France. Dr. Delthil feels that there is room for improvement in the visual screening methods used in the French schools, which she believes fail to locate a large percentage of children with visual handicaps.

Largely as a result of her efforts the school authorities founded the School Ophthalmic Center, which operates in the Paris area and is directed by two ophthalmologists. The Center undertakes to screen and register partially seeing children in the district, to supervise them during their school careers and help them find suitable vocations. It also carries on all possible vision testing of preschool age children with test equipment developed at the Center.

The breakdown of visual defects noted at the Center in the school year 1953–1954 shows 37 per cent with refractive troubles, especially myopia, 34 per cent with congenital anomalies such as nystagmus and albinism, 14 per cent with congenital cataracts, and 15 per cent with various lesions such as optic atrophy, Leber's disease, retinitis pigmentosa, corneal lesions and infantile glaucoma. The author stresses the need for more research by geneticists on familial and hereditary eye diseases.

Dr. Delthil supplies a valuable description of the educational programs for partially seeing children in various countries. Her enthusiasm for American systems which she observed at first hand contrasts with her report of special classes in France. In the Paris area there are only seven classes in five schools, which are old, badly lighted, and inconveniently situated. Strasbourg and Toulouse each have two special classes, Lyon and Nancy one, and one is planned for Bordeaux.

The American method of integrating visually handicapped children into the regular schools is practiced in only one place in Europe, Dr. Delthil writes. This is Bilthoven in Holland.

Transactions of the American Ophthalmological Society, Vol. 53, 1955. Columbia University Press, New York, 1956. 522 p. $18.00.

Minutes of the ninety-first annual meeting of the American Ophthalmological Society, held at White Sulphur Springs, West Virginia, in June 1955, and more than 20 papers presented at the sessions, are included in this volume. Both Society activities and the year's grist of intensive research into blinding diseases, especially glaucoma, constitute a valuable record to be consulted by ophthalmologists and all who follow the development of their work.

Transactions of the Ophthalmological Society of the United Kingdom, Vol. 75, Session 1955. J. & A. Churchill, Ltd., London, 1955. 757 p.

Ocular sarcoidosis and Diamox in the treatment of glaucoma, which were highlighted in the 1955 session of

the Society, are among the wide range of subjects presented in this valuable volume. The Bowman Lecture was delivered by Dr. John H. Dunnington of New York City, whose subject was "Ocular Wound Healing with Particular Reference to the Cataract Incision." Papers offered at the Oxford Ophthalmological Congress and other affiliated societies are included.

Augenheilkunde. Professor Dr. Med. Hugo Gasteiger. Walter De Gruyter & Co., Berlin 1956. 296 p. 38 marks.

Dr. Gasteiger has compiled a general textbook of ophthalmology for the use of specialists, general practitioners and students. The emphasis is on pathological conditions of the eye, illustrated by photographs or drawings, with little space devoted to therapy, and less still to those general considerations derived from modern research which might illuminate the clinical picture. Students and general practitioners who read only German might find this short volume useful for quick reference, but it probably offers no new material to the ophthalmologist.

The Year Book of the Eye, Ear, Nose and Throat. 1955-1956 Series. Edited by Derrick Vail, M.D., and John R. Lindsay, M.D. The Year Book Publishers, Chicago, 1956. 471 p. $6.50.

A year of many and varied advances in ophthalmic research and clinical practice is reflected in the first section of the Year Book, edited by Dr. Vail. The articles abstracted were taken from journals received between October 1954 and September 1955.

Among the mileposts of this period was the use of electromyography to reveal aspects of vergence, which, Dr. Vail commented, "should open a new field of investigation of ocular muscular defects." The Harrington-Flocks multiple pattern method of visual field examination was announced, Dr. Algernon Reese contributed new data on the genetics of retinoblastoma, and Dr. B. F. Chow et al discussed the role of vitamin B_{12} in diabetic retinopathy, which the editor believed of basic importance as suggesting that there are several types of diabetes, only one of which is associated with the characteristic retinopathy.

Expert Committee on Health Education of the Public. First Report. World Health Organization Technical Report Series No. 89. Geneva. 1954. Available at Columbia University Press. 41 p. 25 cents.

Experts from seven countries have agreed on certain principles of health education which strike a new note. Recognizing the impossibility of suggesting a standard pattern which will work everywhere, the committee emphasizes the broad lines of planning, organizing and evaluating programs, the training of personnel and the use of media, and devotes particular attention to how people learn.

"Health education begins with the interest of people in improving their conditions of living," says the report, which goes on to discusss the forces which cause people to learn—their personal goals and interests, and the attitude of the group to which they belong. Health educators should understand the goals for which people are willing to strive, and also what they will reject; and they should choose methods which will enlist the active participation of the people.

The committee states that the nurse and the medical social worker have a moral obligation to teach the prevention of illness to the community. The hospital is another natural center of health education. School administrators and teachers should have special training in this field. The report ends with examples of community participation which illuminate the principles of how people learn.

Suggested School Health Policies. Third Edition. National Committee on School Health Policies. Published by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Washington, D. C., 1956. 40 p.

This revision of national standards of school health was arranged by the National Conference for Cooperation in Health Education. Representatives of 17 national organizations concerned with child health prepared the text as a guide for school administrators, and for all who deal with the health of the school child.

Standards for the safety, hygiene and sanitation of the school itself and for health education are suggested. Services to the individual child begin with continuous observation by teachers. Screening tests for growth and for acuity of vision and hearing lead to a better understanding of the pupil. In elementary and secondary schools there should be an annual vision test with a Snellen chart, as well as vigilance on the part of the teacher for signs of eye defects. When a pupil is ready for secondary school and begins to think about his vocation he should be given a test for color deficiency.

Channels for linking school, parents, and the physician should be established by administrative action. The teacher and school nurse have much information about a child which would be valuable to his physician, and his recommendations should be transferred to them. The parent is the center of this informational exchange.

It is urged that every school have a program for the handicapped. The child with a disability should be treated as far as possible like the normal students, and all modifications of his routine should be directed to helping him to live successfully within his limitations. Pupils in special classes should join with normal classes wherever feasible.

Children with visual acuity of 20/70 or less in the better eye, after correction or treatment, will benefit from the large-type books and other equipment adapted to their visual needs. They may go to a special classroom for close eye work, and join the regular classes for part of the time; or they may be integrated into the regular grades and receive help from an itinerant special teacher.

Exceptional Children. Florence L. Goodenough. Appleton-Century-Crofts, Inc., New York, 1956. 428 p. $4.50.

The section of this text concerned with the physically handicapped was prepared by Mrs. Lois M. Rynkiewicz, a chemist who is interested in psychology. In the three pages devoted to the partially seeing, there is brief mention of the historical development of educational facilities for the partially seeing. It seems surprising that the author was so inadequately acquainted with the extensive literature on this area, and omitted mention of Winifred Hathaway's standard text.

It is unfortunate that the mistaken concept is stated that progressive myopia can be checked if visual strain is kept to a minimum. Errors such as these negate the book's other values.

Historia de la Oftalmologia en Venezuela Hasta 1955. Jose Manuel Espino, M.D. Sociedad Venezolana de Historia de la Medicina, Caracas, 1954. 463 p.

The author begins his history with aboriginal methods of treating eye diseases, and ends it with a bibliography of ophthalmic books and papers written by his colleagues. The first eye department in a hospital began in 1895, and today 28 of the 273 hospitals in the country have ophthalmic departments. In 1918 the first chair of ophthalmology was established in the Central University of Venezuela, held for two decades by Dr. Espino.

Today the nine chief cities have school health centers, and Caracas alone has 36 clinics to serve 100,000 children. In these cities about 75,000 children were given vision tests in 1954, and the school nurses referred more than 13,000 to the clinics.

In the last decade the number of ophthalmologists in Venezuela has more than doubled, and 62 specialists are now in practice.

You and Your Senses. Leo Schneider. Harcourt, Brace & Company, New York, 1956. 132 p. $2.75.

In a long section on eyes the author uses the current technique of explaining by sketches and diagrams rather than words, of suggesting experiments which show how the eye functions, and of appealing to the strong interest of the modern child in television and other optical wonders. Young readers

Transactions of the American Ophthalmological Society, 1955

GORDON M. BRUCE, ed. The official publication of the Society presents the most recent developments in clinical and experimental ophthalmology—including in this volume twelve important theses by new members. Twenty-two essays and a complete report of the discussions at the ninety-first meeting are also included. $18.00

Education and Health of the Partially Seeing Child

WINIFRED HATHAWAY describes means of providing educational facilities for partially seeing children to allow them to participate as nearly as possible in normal school life. "A 3rd edition of such a work attests to the continued need for it."—*Child Development Abstracts and Bibliography.* $3.75

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from 10 to 14 will no doubt enjoy this presentation, which packs in a good deal of instruction.

The choice of material is rather curious. Mr. Schneider goes into a great deal of technical detail, especially about innervation and the rods and cones. He devotes space to rhodopsin, but does not mention the choroid, or the importance of nutrition in vision. He omits strabismus and other eye conditions, the why and wherefore of vision screening tests, how to prevent eye accidents and what to do when they occur.

This last omission is particularly to be regretted in the very short list of do's and don'ts at the end of the section. There is no warning about the dangers of BB guns, fireworks, pointed objects and missiles in this book written for the very age group which is most apt to injure eyes during play.

Best's Safety and Maintenance Directory, 1956-1957. 6th Edition. Alfred M. Best Company, Inc., New York, 1956. 614 p. $7.50.

Listings of protective equipment against eye hazards of all sorts grow longer with each new edition of Best's directory, and show the rapid evolution of devices specialized for various kinds of occupational hazards. Different types of goggles are advocated for protection against impact, harmful radiation, fumes, dusts, chemicals and glare. Several companies make glass or plastic cover lenses to wear over corrective or filter glasses. They may be clipped on over spectacles or inserted in goggle frames. Face shields, hoods and masks, and lens cleaning and maintenance equipment have been designed to make industrial processes such as welding of minimum danger.

The Fourth World. Daphne Athas. G. P. Putnam's Sons, New York, 1956. 318 p. $3.75.

This fascinating novel about life in a school for the blind tells of the love and secret marriage between a blind and a sighted teacher which brought them happiness, and of a furtive affair between two teen-agers which brought tragedy. The author, who is reported to have taught the blind, attempts to portray the various attitudes of the blind toward the sighted and their unnecessary sufferings at the hands of the sighted. The book has been criticized elsewhere as portraying both the blind children and the school personnel as caricatures. Partially seeing children are briefly mentioned when, at the beginning of the school year, the director of the institution decided to have all the pupils paint the new gymnasium—partially seeing children were assigned to each group of the blind, so as to paint any missed areas. There is no mention of ophthalmological problems.

Windows for Rosemary. Marguerite Vance. E. P. Dutton & Company, New York, 1956. 60 p. $2.25.

The child in this story was born blind, but her wise parents have taught her that this is only her way of being different, just as the strawberry mole on her brother's chest makes him different. The story of Rosemary's ninth birthday, when she is given her own typewriter, is the high point of this picture of a blind child who is happy and secure. It should help normal children to understand how the blind function, and any adults who take a few minutes to read this juvenile will find help in dealing with handicapped children.

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